



Evaluation of the Canadian Nuclear Safety Commission's Class Grants and Contributions Program

Final Evaluation Report

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Evaluation of the Canadian Nuclear Safety Commission's Class Grants and Contributions Program Final Evaluation Report

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Executive Summary

This report presents the findings, conclusions and recommendations of an evaluation of the Canadian Nuclear Safety Commission's (CNSC) Class Grants and Contributions Program. The evaluation examines the program's relevance, effectiveness, and efficiency and economy during the period 2008–09 to 2012–13. The evaluation combines evidence from the Canadian Standards Association's (CSA, currently known as the CSA Group) contribution evaluation (conducted October 2011 to June 2012), the Organisation of Economic Co-operation and Development's Nuclear Energy Agency (OECD/NEA) contributions evaluation (conducted June 2012 to March 2013), and the Research Transfer Payments Program's evaluation (conducted June 2013 to March 2014).

Program context

The CNSC's Class Grants and Contributions Program includes the grants and contributions for external research and development (R&D) and other related scientific activities, as well as contributions for the Participant Funding Program (PFP). For the purposes of this evaluation, the grants and contributions managed under the purviews of the CNSC's Research and Support Program (RSP) will be assessed. The PFP will be evaluated separately in 2014–15.

The components of the CNSC's Class Grants and Contributions Program reflected in this evaluation report include:

- CNSC's Research Transfer Payments Program, which includes all grants (Gs) and contributions (Cs) other than those to the CSA (currently known as the CSA Group) or to the OECD/NEA
- CNSC's contribution to the CSA
- CNSC's contributions to the OECD/NEA

The objective of the CNSC's Class Grants and Contributions Program is to enable research, development and management of activities contributing to the five objectives of the RSP.¹ Grants and Contributions provide access to independent advice, expertise, experience and information through contracts, grants or contributions with the private sector or with national or international agencies and organizations. The information obtained as a result of the Grants and Contributions is expected to be shared among CNSC staff and management in order to enhance the regulatory framework and the CNSC's regulatory positions.

1. The five objectives of the Research and Support Program are to (1) Acquire independent expertise, advice and information needed to support timely regulatory judgment decisions; (2) Assist in the identification and assessment of operational problems that may give rise to health, safety, security or environmental hazards; (3) Assist in the development of capability and tools to be able to address health, safety, security or environmental issues; (4) Facilitate the assessment for the technical or scientific basis of licensing decisions and encourage licensees to address these issues; and (5) Aid in the development of nuclear safety standards.

The CNSC's Research Transfer Payments Grants and Contributions are used to enable individuals or organizations to conduct R&D activities or to support related educational or academic objectives. A grant or contribution is initiated when a Technical Authority identifies an area of interest that their division would like to pursue and proposes this to the RSP for funding consideration. The Technical Authority is also responsible for the ongoing management of the grant or contribution. Information gathered from Research Transfer Payments Grants and Contributions is intended to contribute to new, emerging or ongoing regulatory issues in the areas of health, safety, security or the environment. The information obtained is expected to be of high quality and to be used to enhance both CNSC staff and applicants' knowledge and competence. Knowledge and competence is enhanced in scientific, technical and regulatory areas.

The CSA Group's (formerly called the CSA or Canadian Standards Association) Nuclear Standards Program (NSP) develops, reviews, amends and publishes standards for the nuclear power industry. The CSA Group, Canada's largest accredited and integrated standards development and certification organization, manages the program. The CNSC participates in the NSP because it has a strong interest in the development of safety standards related to the nuclear industry. Standards developed under this program form integral components of the CNSC's regulatory framework and are referenced in regulatory instruments such as licences, licence condition handbooks, regulatory documents, and guidance documents.

The mission of the Nuclear Energy Agency (NEA) is to assist its member countries in maintaining and further developing the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes. The NEA's membership consists of 30 OECD member countries, including Canada. The activities of the NEA work program are undertaken by eight Standing Technical Committees (STCs), several Joint Research Projects, and two initiatives – the Generation IV International Forum (GIF) and the Multinational Design Evaluation Programme (MDEP). The research and data obtained as a result of the CNSC contributing to and participating in OECD/NEA work are used to improve the CNSC's regulatory framework, criteria for risk-informed and performance-based inspections, criteria for design reviews and technical assessments, and regulatory capabilities, in general. The CNSC also uses the obtained research and data in order to share technical knowledge with stakeholders.

Methodology

This evaluation was conducted in accordance with the Treasury Board Policy on Evaluation (April 1, 2009) and addresses its core evaluation issues: consistency with federal roles and responsibilities, alignment with government priorities, continued need for the program, achievement of expected outcomes, and demonstration of efficiency and economy.

The evaluation of the CNSC's Class Grants and Contributions Program incorporates findings from three components: the CNSC's Research Transfer Payments Program (excluding the CSA and the OECD/NEA), the CNSC's contribution to the CSA, and the CNSC's contributions to the OECD/NEA. This report aggregates findings from three

separate evaluations. Each evaluation includes the use of multiple lines of evidence and complementary research methods. The table below summarizes the data sources for the component evaluations.

Table 1 Summary of data sources for component evaluations					
	Key informant interviews	Document/file review	Survey	Financial review	Benchmarking study
Research Transfer Payments Program	Yes	Yes	No	Yes	No
CSA contribution	Yes	Yes	Yes	No	Yes
OCED/NEA contribution	Yes	Yes	No	Yes	No

Relevance

The CNSC's Class Grants and Contributions Program is well aligned with federal government priorities related to the safety of the nuclear industry. A recent Government of Canada (GoC) news release (February 2013), for example, states, "The health, safety and security of Canadians and environmental stewardship in all aspects of the nuclear industry remain a priority..."

The role and responsibility of the CNSC in funding Grants and Contributions is supported by the *Nuclear Safety and Control Act* (NSCA) and, in the case of the CNSC's contribution to the CSA, the federal *Cabinet Directive on Streamlining Regulation*. The NSCA states that "[t]he Commission may, in order to attain its objectives...establish and maintain programs to provide the Commission with scientific, technical and other advice and information..."²

The CNSC's Class Grants and Contributions Program reflects the objectives of the RSP. The five objectives of the RSP are to:

1. Acquire independent expertise, advice and information needed to support timely regulatory judgment decisions.
2. Assist in the identification and assessment of operational problems that may give rise to health, safety, security or environmental hazards.
3. Assist in the development of capability and tools to be able to address health, safety, security or environmental issues.
4. Facilitate the assessment for the technical or scientific basis of licensing decisions and encourage licensees to address these issues.
5. Aid in the development of nuclear safety standards.

The Grants and Contributions allow the CNSC to meet these objectives through the exchange of information, knowledge and best practices at the national and international levels.

2. Government of Canada, *Nuclear Safety and Control Act*, S.C. 1997, c.9, s.21.

Effectiveness

The information and data obtained through the Grants and Contributions are useful and are having positive impacts on the CNSC's regulatory activities. The CNSC's Class Grants and Contributions Program has either fully achieved or partly achieved almost all anticipated outcomes for the three components.

The nature of the majority of projects funded under the OECD/NEA contribution is such that these projects have not yet had an impact. Based on evaluation findings, however, it is reasonable to expect that these Grants and Contributions will contribute to the CNSC achieving its objectives for the contribution to the OECD/NEA.

From the evaluation of the CNSC's contribution to the CSA, evidence exists of a need for increased communication within the CNSC about the rationale for the CNSC's involvement with the CSA. Specifically, staff require more direction and increased understanding of the linkage between the CSA's Nuclear Standards Program and the federal *Cabinet Directive on Streamlining Regulation*. The following table summarizes the achievement of anticipated outcomes by component.

Table 2 Achievement of anticipated outcomes, by component, of the Class Grants and Contributions Program

Anticipated outcomes	Achieved (Yes/No/Partly achieved)
Research Transfer Payments Program	
Identification of new, emerging or ongoing regulatory issues in the areas of health, safety, security or the environment	Yes
High quality expertise, advice and information on health, safety, security and environmental issues	Yes
Enhanced CNSC staff and applicants' knowledge and competence	Yes
Improved ability of the CNSC to validate/support regulatory positions	Yes
Enhanced scientific information sharing, consultation and collaboration	Yes
Development of safety standards, requirements, guidance and tools	Partly achieved
Enhancements to regulatory framework documents	Partly achieved
Contribution to CSA	
Strategic and operational plans provide clear direction to the Nuclear Standards Program	No
Committee progress is monitored and stakeholders are kept informed of the status of projects	Yes
Published standards are used by the CNSC for the benefit of the regulatory framework and in licenses	Yes
Special reviews and task force reports lead to the continuous improvement of the management of the Nuclear Standards Program	Yes
CNSC is aligned with the federal <i>Cabinet Directive on Streamlining Regulation</i> as a result of participating in the Nuclear Standards Program	Partly achieved
Contributions to the OECD/NEA	
CNSC's participation in Joint Research Projects enhances CNSC's regulatory framework	Yes
CNSC's participation in Joint Research Projects enhances CNSC's	No

performance reports	
CNSC's participation in the OECD/NEA enhances regulatory oversight capabilities to review data submitted by licensees and vendors	Yes
CNSC's participation in the OECD/NEA increases the ability to share technical knowledge with stakeholders	Yes
Criteria for inspections are improved	No
CNSC's participation in the MDEP enhances CNSC's design reviews and technical assessments of new license applications	No

Efficiency and economy

Under the Treasury Board Evaluation Policy (April 1, 2009), efficiency is defined as maximizing the outputs produced with a fixed level of inputs or minimizing the inputs used to produce a fixed level of outputs; economy is defined as "minimizing the use of resources...to achieve expected outcomes."³ These elements of performance are demonstrated when:

- outputs are produced at minimum cost (efficiency)
- outcomes are produced at minimum cost (economy)

Based on evaluation findings for each of the three component evaluations, it is not possible to provide a full quantitative assessment of the efficiency and economy of the CNSC's Class Grants and Contributions Program. This is a common issue for Grants and Contributions because of the challenges associated with performance measurement of Grants and Contributions, which is dependent on recipient organizations providing detailed reports that link to performance measures for the program.

Interviewees generally feel, however, that the CNSC obtains good value for the funds spent on Grants and Contributions, with tangible benefits to the CNSC's capacities as a regulator. Grants and Contributions provide the CNSC with access to knowledge and information that would not otherwise be easily accessible or would be costly to generate internally within the CNSC.

The assessment of economy and efficiency found evidence of a need to better track CNSC staff time spent on Grants and Contributions related work, specifically for the CSA and the OECD/NEA. There is also a need to implement a performance measurement strategy that will facilitate the assessment of economy and efficiency. Such a strategy, however, must be cognizant of the fact that the CNSC's Grants and Contributions are relatively low risk (and generally low dollar value).

Design and delivery

Although the CNSC's Class Grants and Contributions Program is well managed, only limited progress has been achieved in responding to the recommendations from the previous (2008) evaluation.

3. Treasury Board of Canada Secretariat, *Policy on Evaluation*, April 1, 2009, <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=15024§ion=text#cha4>.

Overall performance measurement was found to be weak. Although all three components have an associated logic model, the evaluation only found evidence of the Research Transfer Payments Program having a performance measurement strategy – and this has not been fully operationalized.

The governance of ongoing Grants and Contributions is functioning well. Although the evaluations of the CSA and OECD/NEA contributions did not explicitly address the issue of governance, given that these components are also managed by the RSP, it is very likely that a similar governance approach is used for the CSA and OECD/NEA contributions. The CNSC's Class Grants and Contributions Program is relatively small in terms of value and, thus, overall risk level.

Evidence exists of a need for increased senior management support of CNSC staff on CSA technical committees/sub-committees, particularly with respect to providing guidance to those who are new to the technical committees/sub-committees.

There is evidence that information is being communicated by CNSC participants of the OECD/NEA and CSA technical committees/sub-committees to their immediate supervisors, particularly through trip reports (for the OECD/NEA); this does not, however, percolate throughout the CNSC.

Recommendations

The following recommendations flow from each of the three component evaluations.

Research Transfer Payments

Recommendation #1: Construct clear and measurable performance objectives and activities, i.e.:

- a. Require the Research and Support Program to systematically collect, analyze, utilize and report on the performance of Research Transfer Payments on an ongoing basis.
- b. Require Technical Authorities to establish and monitor performance for each of their grants and/or contributions on an ongoing basis.

Recommendation #2: Improve Research and Support Program communications regarding Research Transfer Payments.

CSA

Recommendation #1: Construct a rationale that is clearly articulated to CNSC management and staff, to support the use and implementation of CSA Nuclear Standards into CNSC processes for licensing and compliance. The rationale should be consistent with the federal government's directive to streamline regulation.

Recommendation #2: Redraft the current set of objectives defined in the contribution agreement between the CNSC and the CSA to be clear and measurable.

Recommendation #3: Develop and implement ongoing, systematic data collection to support CNSC objectives for contributing to – and participating in – the CSA Nuclear Standards Program.

Recommendation #4: Develop and disseminate information to CNSC staff involved in developing and/or implementing CSA Standards. Efforts to build awareness should specifically address the rationale, objectives, and supporting processes and procedures for use and implementation of CSA Nuclear Standards into licensing and compliance. This information should be developed with senior management support for CNSC staff on technical committees/sub-committees as well continuous efforts to monitor activities related to the CSA Nuclear Standards Program against the CNSC's regulatory framework plan.

OECD/NEA

Recommendation #1: Construct clear and measurable performance objectives and activities, i.e.:

- a. Require Technical Authorities to establish and monitor performance for each of their Joint Research Projects and the Multinational Design Evaluation Programme.
- b. Establish performance objectives for CNSC participation in Standing Technical Committees and link performance to an OECD/NEA logic model.

Recommendation #2: Report to Management Committee, on an annual basis, the performance outcomes in support of the Joint Research Projects, the Multinational Design Evaluation Programme, and the Standing Technical Committees.

Recommendation #3: Improve the communication regarding results of the CNSC's contributions to and participation in the OECD/NEA with internal stakeholders.

1 Introduction

This report presents the findings, conclusions and recommendations of an evaluation of the Canadian Nuclear Safety Commission's (CNSC) Class Grants and Contributions Program. The evaluation examines the program's relevance, effectiveness, efficiency and economy, and design and delivery for continuous improvement during the period 2008–09 to 2012–13. The evaluation combines evidence from the Canadian Standards Association's (CSA, currently known as the CSA Group) contribution evaluation (conducted October 2011 to June 2012), the Organisation of Economic Co-operation and Development's Nuclear Energy Agency (OECD/NEA) contributions evaluation (conducted June 2012 to March 2013) and the Research Transfer Payments Program's evaluation (conducted June 2013 to March 2014).

The evaluation report is organized as follows:

- Chapter 1: Program description and evaluation context
- Chapter 2: Evaluation scope and objectives
- Chapter 3: Approach and methodology for the evaluation
- Chapter 4: Management of the evaluation
- Chapter 5: Evaluation findings and conclusions
- Chapter 6: Summary and recommendations

1.1 Program description

The CNSC's Class Grants and Contributions Program was implemented in 1984 to provide funding to third parties to conduct research and development (R&D) and to provide regulatory support. The CNSC's Class Grants and Contributions Program includes the grants and contributions for external R&D and other related scientific activities, as well as contributions for the Participant Funding Program (PFP). Only the grants and contributions managed by the CNSC Research and Support Program (RSP) were assessed. The PFP will be evaluated separately in 2014–15.

The components of the CNSC's Class Grants and Contributions Program reflected in this evaluation report include:

- CNSC's Research Transfer Payments Program, which includes all grants (Gs) and contributions (Cs) other than those to the Canadian Standards Association (CSA, currently known as the CSA Group) or to the OECD/NEA
- CNSC's contribution to the CSA
- CNSC's contributions to the OECD/NEA

The objective of the CNSC's Class Grants and Contributions Program is to enable research, development and management of activities contributing to the five objectives of the RSP. The five objectives of the RSP are to:

1. Acquire independent expertise, advice and information needed to support timely regulatory judgment decisions.
2. Assist in the identification and assessment of operational problems that may give rise to health, safety, security or environmental hazards.
3. Assist in the development of capability and tools to be able to address health, safety, security or environmental issues.
4. Facilitate the assessment for the technical or scientific basis of licensing decisions and encourage licensees to address these issues.
5. Aid in the development of nuclear safety standards.

Grants and Contributions provide access to independent advice, expertise, experience and information through contracts, grants or contributions with the private sector or with national or international agencies and organizations. The information obtained as a result of the Grants and Contributions is expected to be shared among CNSC staff and management in order to enhance the regulatory framework and the CNSC's regulatory positions. Since 2011, Grants and Contributions have been managed on a three-year plan, with adjustments made on a yearly basis. Logic models for each of the three components may be found in Appendix B.

1.1.1 Research Transfer Payments

The CNSC's Research Transfer Payments include all Grants and Contributions for external research, R&D and other related activities other than those to the CSA and the OECD/NEA. Grants are used to enable individuals or organizations to conduct R&D activities or to support related educational or academic objectives. Contributions may provide the recipient with larger sums of funding but require the recipient to meet performance conditions specified in the contribution agreement.

A grant or contribution is initiated when the Technical Authority identifies an area of interest that their division would like to pursue and proposes this to the RSP for funding consideration.

Information gathered from Grants and Contributions is intended to contribute to new, emerging or ongoing regulatory issues in the areas of health, safety, security or the environment. The information obtained is expected to be of high quality and expected to be used to enhance both CNSC staff and applicants' knowledge and competence.

1.1.2 CNSC's contribution to the CSA

The CNSC has been a major participant in the CSA Group's (formerly called the CSA or Canadian Standards Association) Nuclear Standards Program (NSP) since the program's establishment in the 1970s. The program develops, reviews, amends and publishes standards for the nuclear power industry. The CSA Group, Canada's largest

accredited and integrated standards development and certification organization, manages the program.

The CNSC participates in the NSP because it has a strong interest in the development of safety standards related to the nuclear industry. Standards developed under this program form integral components of the CNSC's regulatory framework and are referenced in regulatory instruments such as licences, licence condition handbooks, regulatory documents, and guidance documents.

1.1.3 CNSC's contributions to the OECD/NEA

Established in 1958, the Nuclear Energy Agency (NEA) is a specialized agency within the Organisation of Economic Co-operation and Development (OECD). The mission of the NEA is to assist its member countries in maintaining and further developing the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes. Its membership consists of 30 OECD member countries, including Canada. The activities of the NEA work program are undertaken by eight Standing Technical Committees (STCs), several Joint Research Projects, and two initiatives: the Generation IV International Forum (GIF) and the Multinational Design Evaluation Programme (MDEP).

The research and data obtained as a result of the CNSC's contributions to and participation in OECD/NEA work are used to improve the CNSC's regulatory framework, criteria for risk-informed and performance-based inspections, criteria for design reviews and technical assessments, and regulatory capabilities, in general; the CNSC also uses the obtained research and data in order to share technical knowledge with stakeholders.

1.2 Resources

The CNSC's Class Grants and Contributions Program is managed by the RSP, which is staffed with three full-time equivalents (FTEs) who administer and manage the CNSC's Grants and Contributions. The ongoing transfer payments for each of the three components included in this evaluation are summarized in Table 3. Over the five-year timeframe, 2008–09 to 2012–13, the CNSC spent \$4,947,586 on Grants and Contributions.

Table 3: Total grants and contributions for the CNSC's Class Grants and Contributions Program, by financial year (\$) ⁴					
Fiscal year	2008–09	2009–10	2010–11	2011–12	2012–13
Research Transfer Payments Program (excluding CSA and OECD/NEA)					
Grants	428,660	184,305	82,955	302,683	613,361
Contributions	74,500	145,477	74,629	73,300	75,000
CNSC's contribution to the CSA					
Contributions	400,000	418,300	448,075	506,971	490,892
CNSC's contribution to the OECD/NEA					
Contributions	137,284	99,706	89,093	193,809	166,728
Total, all Grants and	1,040,444	847,788	694,752	1,076,763	1,345,981

4. Financials do not include applicable HST/GST.

Contributions					
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Source: CNSC internal data, 2013.

1.3 Governance

All external research and other related scientific activities at the CNSC are funded through the RSP, which administers the approval process and budget for the Class Grants and Contributions Program.

Grants are used to enable individuals or organizations to conduct R&D activities or to support related educational or academic objectives. Contribution agreements may provide the recipient with larger sums of funding but require the recipient to meet performance conditions specified in each contribution agreement.

Since 2011, the RSP has been managed based on a three-year research plan. The program continuously accepts Contract Request Forms (contributions) and Grant Request Forms (grants) throughout the three years of the plan. Projects that address the objectives as set out in the plan proceed as planned, while "new" projects must justify the replacement of a previously planned project or a new need. Since 2012, in the case of contributions, scoping documents are maintained by the Regulatory Research and Evaluation Division (RRED) to capture project contracts and contributions, organized by program areas. The RSP budget is allocated to the program areas based on an assessment made of research priorities outlined in the scoping documents.

The RSP is managed by the director of Regulatory Research and Evaluation. Activities are carried out by two Regulatory Research officers, with the support of an administrator.

Each grant and contribution has a Technical Authority responsible for monitoring the progress of deliverables identified in the funding agreement.

1.3.1 CNSC's contribution to the CSA

The CNSC's participation in the CSA's NSP is managed by several parties within the CNSC, depending on whether the standard is to be used in licensing and compliance or whether direction/guidance is being given on the CNSC's participation in the program itself.

Once standards have been published by the CSA, it is the responsibility of technical specialists, directors or directors general to determine whether a CSA standard is appropriate for use in a licence condition, or as guidance on compliance with the licence by reference in the *Licence Conditions Handbook*.

1.3.2 CNSC's contributions to the OECD/NEA

The CNSC's contributions to the OECD/NEA are managed by several stakeholders within the CNSC. Interest in participating in one of the Joint Research Projects or in the MDEP is initiated by a need for scientific or technical information within a specified field by a CNSC staff member (e.g., cable aging at nuclear power plants). Following, a

request is made to the CNSC's RSP to prepare a contribution agreement. The CNSC staff member originating the request, or a delegate, is named as Technical Authority.

In the case of STCs, which are not funded through contribution agreements, continued participation is managed by the CNSC director general. The director general approves all travel for staff participating in STCs.

Periodically, the Operations Management Committee (OMC) is briefed on the full range of international committees and working groups (including the OECD/NEA) in which operational staff participate.

1.4 Stakeholders

The internal stakeholders of the CNSC's Class Grants and Contributions Program are CNSC staff. External stakeholders include licensees, vendors, regulatory authorities, and the Canadian public.

1.4.1 CNSC's contribution to the CSA

Internal stakeholders for the CNSC's contribution to the CSA included in the development of CSA standards are the staff and management of the NSP, who provide the project management of the standards development process and who report to the CSA executive leadership team and the Board of Directors responsible for overseeing CSA standards development. The NSP membership is composed of representatives from industry (owners, operators and producers, service providers, and suppliers and fabricators, as well as industry associations), as well as provincial, federal and municipal regulatory bodies. Members who participate in voting or in associate capacities of the NSP oversee the strategic direction of the NSP. Additionally, the same member organizations participating in the NSP are often represented on the program's technical committees/sub-committees, which also include subject-matter experts in the nuclear field.

Internal stakeholders included in the implementation of CSA standards are the CNSC technical specialists, directors or directors general participating in the program's technical committees/sub-committees, who are further supported by their senior management in the Regulatory Framework Steering Committee (RFSC) and/or the OMC. Additionally, there are other CNSC staff members who do not participate in the development of standards but who are responsible for implementing and assessing compliance against specific standards inherent in requirement documents covering Class I and Class II facilities and activities. Their work is further supported by their senior management, who are also participants of the RFSC and/or the OMC. Directors general and vice-presidents involved in the RFSC and OMC are responsible for overseeing the implementation of the content covered by CSA standards within both requirement and guidance documents.

Stakeholders involved in the endorsement of CSA standards include the Management Committee (MC) (approving guidance documents) and the Commission (approving regulatory documents).

The Canadian public is involved at key stages in the development and implementation process for CSA standards. The CSA engages the Canadian public, licensees and interested organizations to provide input and feedback on standards before they are published, during their established public notification and review periods. All the regulations developed by the CNSC include two public consultations periods; new regulations or amendments to regulations are published in the *Canada Gazette* Part I for the period of public consultation, as well.

1.4.3 CNSC's contributions to the OECD/NEA

The primary internal stakeholders are CNSC staff and management who participate in the Joint Research Projects, the MDEP, and STC working groups and committees. Most of the CNSC representatives are members of the Technical Services Branch and Regulatory Operations Branch of the CNSC.

The external stakeholders are varied and include Canadian licensees and vendors who contribute their own data as part of some of the projects and working groups (as well as share lessons and learned and best practices) and other national regulatory and safety authorities who benefit from the experience and information/data that the CNSC shares. The NEA benefits by having multiple national regulators, including Canada, participate in its various projects/working groups and committees in order to contribute to the NEA's best scientific and technical work. Furthermore, the International Atomic Energy Agency, as a stakeholder to the NEA through various joint groups, benefits indirectly through Canada's participation in that project.

2 Evaluation Scope and Objectives

The evaluation of the CNSC's Class Grants and Contributions Program incorporates evaluation findings from three components: CNSC's Research Transfer Payments Program (excluding the CSA and the OECD/NEA), the CNSC's contribution to the CSA, and the CNSC's contributions to the OECD/NEA. This report aggregates findings from three separate evaluations, each with a slightly different timeframe. The timeframe for each evaluation and the period of time during which the evaluation was conducted are summarized in Table 4.

Table 4: Summary of time period covered by evaluation and period of data collection		
Evaluation subject	Period covered by evaluation	Evaluation timelines
Research Transfer Payments Program	April 1, 2008 to March 31, 2013	June 2013 to June 2014
CSA	March 31, 2006 to March 31, 2011	October 2011 to June 2012
OECD/NEA	March 31, 2007 to March 31, 2012	June 2012 to March 2013

This is a mandatory evaluation required by the *Financial Administration Act*⁵ and the 2006 GoC *Policy on Transfer Payments*.⁶ These policies require an evaluation of relevance and effectiveness of grants and contributions every five years.

2.1 Evaluation questions

The evaluation of the CNSC's Class Grants and Contributions Program was conducted in accordance with the April 2009 GoC *Policy on Evaluation* and addresses its core evaluation issues: continued need for the program, alignment with government priorities, consistency with federal roles and responsibilities, achievement of expected outcomes, and demonstration of efficiency and economy. The evaluation also examined the extent to which actions arising from the 2008 evaluation have been implemented. The 2008 evaluation of the CNSC's Class Grants and Contributions Program resulted in the following recommendations and actions:

Recommendation #1: Further strengthen performance measurement and reporting.

Action: CNSC management directed staff to undertake a comprehensive and detailed review⁷ of all research and support activities at the CNSC, including those managed under the RSP (including Grants and Contributions) and other Directorate-specific programs.

Recommendation #2: Further strengthen a common understanding of the grants and contributions.

Action: A briefing was provided to senior management on the overall RSP, including the Class Grants and Contributions, in January 2009.

Recommendation #3: Enhance the effective internal dissemination of project results and learnings.

Action: Enhancements were made to the program information provided on the CNSC's internal and external websites to improve awareness and better disseminate program project results.

For all three component evaluations, the evaluation function at the CNSC consulted with an Evaluation Working Group (EWG) and an Evaluation Advisory Committee (EAC) to validate the evaluation framework, including the evaluation matrix to guide each evaluation. The evaluation questions agreed upon for each evaluation appear in the evaluation matrices in Appendix C.

5. See section 42.1 of the *Financial Administration Act*.

6. See section 6.5 of the GoC *Policy on Transfer Payments* (2006).

7. The exercise was aimed at enhancing program alignment to, and reporting against, the CNSC's strategic plans and priorities (and Performance Activity Architecture); improving the governance structure and processes for engagement of CNSC senior management in the strategic direction of the program; improving processes for, and follow-up on, the incorporation of program results and learnings in the CNSC's management system, regulatory framework and staff development programs; and ensuring adequate staffing and funding for the program administration.

3 Evaluation Approach and Methodology

The program evaluation matrix for each component included in the evaluation of the CNSC's Class Grants and Contributions Program outlines which methods were used to capture data for each of the evaluation indicators. The evaluation matrices include the use of multiple lines of evidence and complementary research methods as a means to ensure the reliability of the information and data collected.

3.1 Data sources

This section describes the data sources for each of the three component evaluations. In all cases, a customized template was developed to populate findings and conclusions from each data source for each evaluation; this enabled the extraction and analysis of relevant information according to evaluation questions and indicators.

3.1.1 CNSC's Research Transfer Payments Program

For the evaluation of the CNSC's Research Transfer Payments Program, three lines of inquiry were employed. These were both quantitative and qualitative, and included a document review, interviews and financial analysis. The data sources are described below by line of inquiry. The list of documents reviewed and the interview questions may be found in Appendix D.

Document and file review

A document review was undertaken for the purposes of describing the program and its activities and outputs. It was also used to assess relevance, establishing production of outputs leading to the achievement of outcomes and assessing design and delivery.

Interviews

Key informant interviews were conducted with CNSC management for the purpose of addressing program relevance and productivity of outputs leading to achievement of outcomes, along with addressing efficiency and economy. Table 5 identifies the number of key informant interviews by group.

Table 5: Interviewees by respondent group (Research Transfer Payments Program)	
Respondent group	Number of interviewees
Research and Support Program staff	4
Management	5
Technical Authorities (5+ year Grants and Contributions)	5
Technical Authorities (5 or less year Grants and Contributions)	11
Contract administration staff	1
Total	26

An interview guide was drafted based on the evaluation matrix as well as findings and conclusions based on the document review. The guide was pre-tested with members of the EWG for feedback on content, clarity, length and flow.

Interviewees were assured of their anonymity (according to Canadian privacy and access-to-information laws) before each interview commenced. Findings were reported in an aggregate manner, with no reference to any individual interviewee.

Financial review

For the purpose of addressing efficiency and economy, non-salary financials and salary financials for ongoing Grants and Contributions related to the CNSC's Class Grants and Contributions Program were reviewed and analyzed. Financial information was extracted from the financial system of record (Freebalance). The CNSC Planning and Management Reporting System (CPMRS), an internal database used to track and report financial information at the CNSC, was also used.

3.1.2 CNSC's contribution to the CSA

For the evaluation of the CNSC's contribution to the CSA, four main lines of inquiry were employed, including both quantitative and qualitative methods: a document review, interviews, a Web-based survey, and a benchmarking study. The data sources are described below by line of inquiry. The list of documents reviewed, interview questions and survey questions may be found in Appendix D.

Document review

A documentation review was undertaken for the purposes of describing the program and its activities, outputs and mandate; assessing relevance; establishing production of outputs leading to achievement of outcomes; and assessing efficiency.

Interviews

For the purpose of addressing program relevance, productivity of outputs leading to achievement of outcomes, and efficiency, key informant interviews were conducted with CNSC staff. In total, 15 interviews were conducted, as summarized in Table 6.

Table 6: Interviewees by respondent group (contribution to the CSA)	
Interviewee grouping	Number of interviews
CNSC staff	
Directors general	7
Directors	3
Senior staff	3
CSA Nuclear Standards Program	
Management	2
Total	15

The same process was used when conducting interviews for the evaluation of the CNSC's contribution to the CSA as when conducting interviews for the evaluation of the CNSC's Research Transfer Payments Program.

Survey

For the purpose of addressing program relevance, productivity of outputs leading to achievement of outcomes, and efficiency, a Web-based survey was conducted. The survey sample included a total of 56 participants belonging to one of three categories:

1. CNSC representatives who participate in the CSA NSP technical committees/sub-committees
2. other CNSC employees who reference/use standards in their work
3. external to the CNSC, CSA NSP members/stakeholders who participate as voting members or associate members of the CSA Nuclear Safety and Security Commission (NSSC)

It should be noted that a significant number of the NSSC voting members or associate members are also representatives on the NSP technical committees/sub-committees. The average number of years reported by the respondents as being involved with the program was 6.5 years.

A survey guide was drafted based on the evaluation matrix presented in the evaluation framework and the findings and conclusions based on the document review. The guide was pre-tested with members of the EWG for feedback on content, clarity, length and flow.

Overall, there was a 63 percent response rate for the survey. The response rate by category of participants is summarized in Table 7. It should be noted that inferential statistics were not used to describe the survey data. The total population did not exhibit normal distribution characteristics, and the sample size was not drawn randomly.

Table 7: Survey response rate, by participant category			
Category of respondent	Valid email addresses	Number of responses, by category	Response rate (%)
CNSC representatives on technical committee/sub-committee	17	11	65
Other CNSC employees	18	7	39
CSA Nuclear Standards Program members/stakeholders	21	17	81
Total responses	56	35	63

Benchmarking study

A benchmarking study was undertaken to explore alternative design/delivery approaches that could increase cost-effectiveness and efficiency. The study compared Canada's design/delivery model for national nuclear standards development and implementation to that of the United States, Great Britain and France. These three jurisdictions were selected based on their nuclear energy complement. A benchmarking framework was developed, identifying four key benchmark indicators. Because cost-effectiveness and efficiency are challenging priorities to measure for this type of process, the indicators were aimed at measuring complexity (in terms of process and issues scope), cost and timing. The study included a review of documentation from all three jurisdictions and was further supplemented with interviews with technical experts from the countries selected, except France.⁸

An interview guide was drafted based on the benchmarking framework. Interview participants were sent engagement letters three weeks before interviews were scheduled, outlining the intention of the interview, the indicators defining the study, and how the study would be used. Notably, there were no privacy or anonymity considerations to be outlined, as these interviews were strictly factual and used to fill in any information gaps based on data analyzed from the review of documentation.

3.1.3 CNSC's contribution to the OECD/NEA

For the evaluation of the CNSC's contribution to the OECD/NEA, three main lines of inquiry were employed. These were both quantitative and qualitative, and included a document review, interviews, and financial analysis. The data sources are described below by line of inquiry. The list of documents reviewed, interview questions and survey questions may be found in Appendix D.

Document review

A document review was undertaken for the purposes of describing activities, outputs and mandates of the OECD/NEA. It was also used to assess relevance, establishing the impact on the CNSC's regulatory framework and compliance activities, and to assess best practices and lessons learned.

Interviews

Key informant interviews were conducted with CNSC staff for the purpose of addressing program relevance, productivity of outputs leading to achievement of outcomes, efficiency and economy, and design/delivery for continuous improvement. Interview participants included all technical specialists, directors, and senior management representing the CNSC on Joint Research Projects, the MDEP and STCs. An additional CNSC representative was also interviewed to confirm information related to assessment

8. An interview was not conducted with the identified technical representative from France, or a delegate, as they were unreachable during the timeframe, despite multiple CNSC efforts to make contact with the French Nuclear Safety Authority.

of nuclear power plant safety. Table 8 identifies the number of key informant interviews by group.

Table 8: Interviewees by respondent group (contribution to the OECD/NEA)	
Interview group	Number of interviews
Representatives on Joint Research Projects	6
Representatives on MDEP	7
Representatives on STCs	12
Senior management	4
Other	1
Total	30

The same process was used when conducting interviews for the evaluation of the CNSC's contribution to the OECD/NEA as when conducting interviews for the evaluation of the CNSC's contribution to the CSA.

Financial review

For the purpose of addressing efficiency, finances related to the CNSC's contributions to and participation in the OECD/NEA were reviewed and analyzed. Financial information was extracted from the financial system of record (Freebalance). The CNSC Planning and Management Reporting System (CPMRS), an internal database used to track and report financial information at the CNSC, was also used. All information on the contribution allotments, as well as travel time spent by all participants of OECD/NEA Joint Research Projects, MDEP and STCs was analyzed.

3.2 Limitations of the evaluation methodology and mitigation strategies

The evaluation methodology was designed to provide multiple lines of evidence in order to identify relevant evaluation findings. The data and information were collected to respond to the evaluation questions and indicators. As in all evaluations, there are limitations and considerations that should be noted. The following sections summarize limitations encountered in all three component evaluations.

Lack of performance data

During the planning stage, it became evident that the CNSC did not have a performance measurement strategy in place for its Grants and Contributions program. As such, there was no documentation of the benefits and measures to assess performance of intended results. In order to be able to effectively evaluate the CNSC's Class Grants and Contributions Program, credible and reliable performance data should be collected on an ongoing basis.

Mitigation strategy: The evaluator met with the EWG for each evaluation to identify and gather key documentation on the program, in order to assess whether there were sufficient data that could be generated to effectively conduct an evaluation. In all three evaluations, the EWG was able to identify key documents relevant to the program. An

initial assessment of these data determined that they were sufficient for effectively conducting an evaluation.

Lack of financial data

During the planning stage for each evaluation, it became evident that the financial data supporting outputs and outcomes were insufficient. Financial data on outcomes is required, being fundamental to assessment of economy. Some degree of efficiency was measurable for the CSA contribution because the CSA produces planned resource tables for the fiscal year that include planned person-days of CNSC representative(s) on the NSSC as well as on the CSA NSP technical committees/sub-committees.

Mitigation strategy: A financial analysis on planned versus actual expenditures spent on activities for each of the three evaluations, relative to regulatory documents, was undertaken. By introducing the regulatory documents comparator, economy could partially be addressed. Additionally, the evaluator introduced proxy measures for cases in which actual financial expenditures could not be obtained. The proxy measures included interview and survey questions targeting recalled time spent on activities, in addition to opinions on efficiency and cost-effectiveness. Further, a benchmarking study was designed as another line of inquiry for the evaluation of the CSA contribution and the Research Transfer Payments Program, specifically addressing alternative design and delivery approaches (to increase cost-effectiveness and efficiency) in three other countries. Neither benchmarking study provided robust data on cost-effectiveness and efficiency.

4 Management of the Evaluation

4.1 Roles and responsibilities

All three evaluations used the same approach with respect to managing the roles and responsibilities related to the evaluation. This section describes this approach.

The lead evaluator was responsible for managing all phases of the evaluation (planning, conducting and reporting) and for developing all evaluation deliverables, including the terms of reference, data collection templates and instruments, contract, correspondence to interview participants, draft evaluation reports, final evaluation report, technical support in developing the management action plan and monitoring thereafter, and briefing materials to inform senior management of evaluation findings, conclusions and recommendations.

The EWG comprised a director and program officers from the relevant Directorates who assisted in coordinating data collection and in pilot testing the interview guide. The EWG played a role in validating the evaluation terms of reference (including logic model and matrix) before the evaluation commenced and validating the draft evaluation report for technical content before it was presented to the Evaluation Advisory Committee (EAC).

The EAC was composed of three director generals representing relevant Directorates and chaired by the Strategic Planning Directorate (head of evaluation). The primary role of the EAC was to provide management input to help validate the evaluation terms of

reference (including the evaluation questions and logic model), the evaluation report, and the management response to the evaluation's recommendations.

The CNSC's Management Committee (MC) serves as the Departmental Evaluation Committee and is responsible for the timely validation of evaluation reports and management action plans. The president is the chair of the MC and approves all evaluation reports and management action plans (see Appendix A).

4.2 Contracts and associated procedures and considerations

Table 9 summarizes the contracts associated with each of the three component evaluations. The contracts supported the evaluation function's use of in-house resources.

Table 9: Contracts associated with the evaluation of the Class Grants and Contributions Program		
Contract	Type of contract	Value
Preparation of evaluation report for the CNSC's Class Grants and Contributions Program	Sole source	\$13,062*
Research Transfer Payments Program		
Document and file review	Sole source	\$22,075
Analysis of evaluation findings from all lines of evidence and preparation of a presentation	Sole source	\$13,062*
CNSC's contribution to the CSA		
Develop and conduct a Web-based survey	Sole source	\$22,402
Develop and conduct a benchmarking exercise	Sole source	\$24,860
CNSC's contribution to the OECD/NEA		
Conduct key informant interviews	Sole source	\$22,840

* Value of contract was for both the preparation of an evaluation report for the CNSC's Class Grants and Contributions Program and analysis of evaluation findings and presentation for the Research Transfer Payments Program.

4.3 Challenges to implementation

The three evaluations encountered a small number of challenges. These are described below.

Timing

All three evaluations were expected to be completed within a tight timeline. Without a clear plan (articulated in an evaluation framework and validated with key program stakeholders and careful project management oversight, against timelines established within that plan), the evaluation would not have been delivered in its intended timeline. Moreover, the lack of financial or performance data further challenged the timelines.

Mitigation strategy: The evaluator met with key program stakeholders at the beginning of each evaluation project, in order to quickly identify and collect relevant background documentation, solicit opinions on perceived issues that defined the scope of the evaluation, and identify intended involvement of key stakeholders throughout the

evaluation process. Following the approval of the evaluation framework, the evaluator developed and implemented a comprehensive work breakdown structure to manage the conduct of the evaluation process. As a result of careful planning and management of timelines, combined with effective communication between the evaluator and key stakeholders, the evaluation report and management action plan were produced within the anticipated timeframe.

Limited understanding of program evaluation

The evaluation function at the CNSC was reinstituted in 2010 and only fully staffed in the fall of 2011. Most CNSC staff members are unfamiliar with the concepts and processes used in program evaluation and often did not understand evaluation needs.

Mitigation strategy: For the purposes of these evaluations, the lead evaluator met with key program stakeholders at the beginning of the evaluation project to explain the concept of evaluation and the evaluation process, and to identify key information needed from the EWG and EAC. Additionally, the use of participatory-level data collection and instrument testing helped to increase the knowledge of evaluation among EWG members, thus contributing to increased knowledge of results-based management.

5 Findings and Conclusions

This chapter presents the findings and conclusions for each of the issues addressed by the three component evaluations.

5.1 Relevance

The evaluation questions addressed in this section link to the Treasury Board's core evaluation issues (April 2009) related to relevance of the CNSC's Class Grants and Contributions Program. Overall conclusions for the CNSC's Class Grants and Contributions Program are presented first, followed by a summary of supporting evidence from the three components included in this evaluation.

5.1.1 Overall conclusions – Relevance

Based on evidence from all three components, the CNSC's Class Grants and Contributions Program is well aligned with federal government priorities related to the safety of the nuclear industry. A Government of Canada (GoC) news release from February 2013, for example, states, "The health, safety and security of Canadians and environmental stewardship in all aspects of the nuclear industry remain a priority..."

The role and responsibility of the CNSC in funding Class Grants and Contributions is supported by the *Nuclear Safety and Control Act* (NSCA) and, in the case of the CNSC's contribution to the CSA, the federal *Cabinet Directive on Streamlining Regulation*. The NSCA states that "[t]he Commission may, in order to attain its objectives...establish and

maintain programs to provide the Commission with scientific, technical and other advice and information..."⁹

The CNSC's Class Grants and Contributions Program reflects the objectives of the Research and Support Program (RSP). The Grants and Contributions allow the CNSC to meet these objectives through the exchange of information, knowledge and best practices at the national and international levels.

5.1.2 Supporting evidence – Relevance

This section presents the supporting evidence related to relevance across all three components included in this evaluation. The evidence is further organized by Treasury Board Secretariat (TBS) evaluation issue.

Issue #1: Continued need for the program – assessment of the extent to which the program continues to address a demonstrable need and is responsive to the needs of Canadians

The objective of the CNSC's Class Grants and Contributions Program is to enable research, development and management of activities contributing to the five objectives of the RSP.¹⁰

The majority of the stakeholders for the Class Grants and Contributions Program are internal to the CNSC – staff and management who directly participate in conferences, meetings or development of standards and technical information used to support CNSC regulatory activities. Contributions tend to produce scientific and technical information that CNSC staff use in technical assessments, or guidance to demonstrate "best practices" or to assess licensing submissions. The majority of grants, on the other hand, are intended for outreach purposes, often directed at a target population such as medical physicists.

Ultimately, the Class Grants and Contributions directly contribute to the scientific and technical information needed by the CNSC to assess nuclear licensing.

Issue #2: Alignment with Government Priorities – assessment of the linkages between program objectives and federal government priorities and departmental strategic outcomes

A GoC news release from February 28, 2013 states that, "The health, safety and security of Canadians and environmental stewardship in all aspects of the nuclear

9. Government of Canada., *Nuclear Safety and Control Act*, S.C. 1997, c.9, s.21.

10 The five objectives of the RSP are to (1) acquire independent expertise, advice and information needed to support timely regulatory judgment decisions; (2) assist in the identification and assessment of operational problems that may give rise to health, safety, security or environmental hazards; (3) assist in the development of capability and tools to be able to address health, safety, security or environmental issues; (4) facilitate the assessment for the technical or scientific basis of licensing decisions and encourage licensees to address these issues; and (5) aid in the development of nuclear safety standards.

industry remain a priority of the Harper Government.”¹¹ All three components of the Class Grants and Contributions Program were found to provide the CNSC with scientific and technical knowledge that allows the CNSC to more effectively regulate licensees and ensure the safety of the nuclear industry.

Additionally, the three components were examined regarding alignment to the CNSC's core priority. The three components were most closely aligned with the core priority related to safety. The core priority is focused on regulatory work related to compliance and licensing and the key mechanisms driving this linkage are the sharing of research, information, data, lessons learned, and best practices among regulators.

Issue #3: Alignment with Government Priorities – assessment of the roles and responsibilities for the federal government in delivering the program

Supporting the CSA contribution, the OECD/NEA contributions, and the Research Transfer Payments, the *Nuclear Safety and Control Act* (NSCA) states, “The Commission may, in order to attain its objectives...establish and maintain programs to provide the Commission with scientific, technical and other advice and information...”¹² Moreover, the NSCA provides the CNSC with comprehensive powers to establish and enforce these national standards for nuclear energy in the areas of health, safety, security and environment.

Specific to the CSA contribution, the federal *Cabinet Directive on Streamlining Regulation* encourages the use of standardization tools and approaches offered by Canada's National Standards System (NSS), which is governed by the Standards Council of Canada (SCC). The SCC accredits the CSA to develop national standards in many areas, including the nuclear sector.

5.2 Effectiveness

This section addresses evaluation questions related to the effectiveness of the CNSC's Class Grants and Contributions Program. The section responds to the Treasury Board's core evaluation question related to the achievement of expected outcomes. Overall conclusions for the CNSC's Class Grants and Contributions Program are presented first, followed by a summary of findings for each of the three components included in this evaluation. Each component has unique outcomes and therefore cannot be synthesized and discussed at a programmatic level without losing significant context and value.

5.2.1 Overall conclusions – Effectiveness

Issue #4: Continued need for the program – assessment of progress toward expected outcomes (including immediate, intermediate and ultimate outcomes) with reference to performance targets, program reach, and

11. The Harper Government Announces New Direction for Nuclear Laboratories, <http://www.nrcan.gc.ca/media-room/news-release/2013/1773>, accessed February 28, 2014.

12. Ibid.

program design, including the linkage and contribution of outputs to outcomes

Table 10 summarizes whether, based on evaluation findings, the three components of the CNSC's Class Grants and Contributions Program have achieved the anticipated outcomes identified in each of the three evaluation matrices.

Table 10: Achievement of anticipated outcomes by components of the Class Grants and Contributions Program	
Anticipated outcomes	Achieved (Yes/No/Partly achieved)
Research Transfer Payments Program	
Identification of new, emerging or ongoing regulatory issues in the areas of health, safety, security or the environment	Yes
High quality expertise, advice and information on health, safety, security and environmental issues	Yes
Enhanced CNSC staff and applicants' knowledge and competence	Yes
Improved ability of the CNSC to validate/support regulatory positions	Yes
Enhanced scientific information sharing, consultation and collaboration	Yes
Development of safety standards, requirements, guidance and tools	Partly achieved
Enhancements to regulatory framework documents	Partly achieved
Contribution to the CSA	
Strategic and operational plans provide clear direction to the Nuclear Standards Program	No
Committee progress is monitored and stakeholders are kept informed of the status of projects	Yes
Published standards are used by the CNSC for the benefit of the regulatory framework and in licenses	Yes
Special reviews and task force reports lead to the continuous improvement of the management of the Nuclear Standards Program	Yes
CNSC is aligned with the federal <i>Cabinet Directive on Streamlining Regulation</i> as a result of participating in the Nuclear Standards Program	Partly achieved
Contributions to the OECD/NEA	
CNSC's participation in Joint Research Projects enhances CNSC's regulatory framework	Yes
CNSC's participation in Joint Research Projects enhances CNSC's performance reports	No
CNSC's participation in the OECD/NEA enhances regulatory oversight capabilities to review data submitted by licensees and vendors	Yes
CNSC's participation in the OECD/NEA increases the ability to share technical knowledge with stakeholders	Yes
Criteria for inspections are improved	No
CNSC's participation in the MDEP enhances CNSC's design reviews and technical assessments of new license applications	No

The Class Grants and Contributions Program has either fully achieved or partly achieved almost all anticipated outcomes for the three components. Based on evaluation findings, the information and data obtained through the Class Grants and Contributions Program are being used and are having a positive impact on the CNSC's regulatory activities.

Overall, information and research obtained is positively impacting the ability of CNSC staff to regulate the nuclear industry. The extent to which this can be measured (i.e., quantified) is limited, however, because information from Grants and Contributions represents only one of many inputs into the regulatory framework.

In addition to knowledge use and sharing within the CNSC, evidence exists that knowledge and information is being shared with stakeholders. There is also evidence of collaboration with stakeholders across all three components.

Although there is strong anecdotal (qualitative) evidence that the CNSC's Class Grants and Contributions Program is achieving its objectives, there is little performance measurement data to support this assessment. There is evidence of a need for a performance measurement strategy for the program.

In addition, there is also evidence of a lack of internal communication regarding the Class Grants and Contributions Program. For example, evidence shows that CNSC staff participating on CSA committees/sub-committees feel they are not provided with sufficient guidance and direction, particularly with respect to the alignment of the CSA with the federal Cabinet Directive on Streamlining Regulation. There is also evidence of a need for a more coordinated mechanism for sharing information about Grants and Contributions within the CNSC.

5.2.2 Supporting evidence by component – Effectiveness

This section presents the supporting evidence by component. Unique outcomes are expected to be achieved by each component of the CNSC's Class Grants and Contributions Program.

Research Transfer Payments

The following outcomes were achieved:

Outcome: New, emerging or ongoing regulatory issues in the areas of health, safety, security or the environment

Outcome: High quality expertise, advice and information on health, safety, security and environmental issues

Based on the findings from the key informant interviews and file review, in most cases, the Research Transfer Payments contribute to the identification of new, emerging or ongoing regulatory issues and produce high quality expertise and advice. According to a presentation made by the RRED, the RSP is intended to fund projects via Grants and Contributions that meet the research needs of the CNSC, specifically to generate knowledge and information to support the CNSC in its regulatory activities.¹³ As of fiscal year 2013–14, the Grants and Contributions funded via the RSP will explicitly support the information needs of CNSC staff related to new, emerging or ongoing regulatory

13. Keith Dewar, CNSC Research and Support Program: Objectives and Needs, December 11, 2012, e-docs 4029066.

issues as they pertain to the CNSC's eight safety and control areas.¹⁴ One of the many examples from the evidence gathered from interviews and the file review is the CNSC's contribution to the U.S. Nuclear Regulatory Commission's International Steam Generator Tube Integrity Program (ISG-TIP). The objective of the ISG-TIP is to provide the experimental data and predictive correlations and models to allow nuclear regulatory staff to independently evaluate the integrity of steam generator tubes as plants age and degradation proceeds, as new forms of degradation appear, and as new defect-specific management schemes are implemented. The CNSC's participation in the ISG-TIP allows the CNSC to identify new and emerging regulatory issues that may arise from aging steam generators.

Outcome: Enhanced CNSC staff knowledge and competence

Based on evidence from interviews and the document and file review, Grants and Contributions have had a positive impact on CNSC staff knowledge. There is evidence from trip reports submitted by CNSC staff that their knowledge related to a broad range of issues relevant to the work of the CNSC has been enhanced as a result of participating in meetings and conferences. In addition, there is evidence that the documents and reports emerging from these meetings and conferences are likely to be useful to other staff at the CNSC, since staff attending meetings or conferences are required to share the information obtained with others. Specific examples include:

- The CNSC's attendance at the Cooperative Severe Accident Research Program (CSARP) allowed CNSC staff attending these meetings both to share the CNSC's knowledge and to obtain the knowledge of other nuclear regulators related to severe accidents.
- The ISG-TIP represents an opportunity for the CNSC to acquire information in order to position CNSC staff at par with industry counterparts on issues related to steam generator technology. The knowledge gained at the ISG-TIP allows the CNSC to stay current with respect to trends in operational experience, research and best practices in the oversight of aging steam generators.
- The CNSC's participation in the International Scientific Committee Meeting for the Evaluation of IRSM Research Activities in Radiation Dosimetry provided CNSC staff the opportunity to share their exchange knowledge related to radiation protection and radiation dosimetry. Information and research exchanged at this meeting is expected to provide opportunities for benchmarking and increased ability of CNSC experts to assess licensee dosimetry and radiation protection programs.

Almost all interviewees reported that the information gained from Grants and Contributions has enhanced their knowledge. As one interviewee explained, "...we have gained a significant amount of information. The gain in knowledge is more significant than the amount of money the CNSC spent on the contribution." Most interviewees indicated that the information acquired through Grants and Contributions is directly relevant to their work and has a positive impact.

14. The eight safety and control areas are Physical Design; Fitness for Service; Safety Analysis; Safeguards; Environmental Protection; Waste Safety; Radiation Protection; and Human Performance Management.

Outcome: Improved ability of the CNSC to validate/support regulatory positions

There is evidence from the document review, file review and key informant interviews that the CNSC's participation in Grants and Contributions has improved its ability to validate or support its regulatory positions. Specific examples include:

- University Network of Excellence in Nuclear Engineering – CNSC licensing positions regarding probabilistic safety
- United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) – radiation protection regulations
- International Commission on Radiological Protection (ICRP) – radiation protection regulations
- Licensing positions validated by citing ICRP recommendations
- Canadian Radiation Protection Association (CRPA) – Consultation with licensees to gain support of regulatory positions
- CSARP – Licensing submission on hydrogen behavior and mitigation

Outcome: Enhanced scientific information sharing, consultation and collaboration

There is strong evidence that information obtained via Grants and Contributions is shared within the CNSC among staff, as well as externally with stakeholders. A review of documentation, particularly trip reports produced by CNSC staff, indicates that Grants and Contributions involving the participation or attendance by CNSC staff at international meetings and conferences are contributing to enhanced information sharing, consultation and collaboration across nuclear regulators, researchers, licensees and others. For example:

- Although the information and research produced by the UNSCEAR is broadly shared, the active participation of members is critical to the development of the research. As a member of the UNSCEAR and participant at UNSCEAR conferences, the CNSC is able to share its perspectives and research and to influence the development of international standards and regulations.
- The CNSC's participation in the ICRP symposium allowed for CNSC representatives to learn about ICRP's work. The number of participants from 35 countries allowed for the exchange of information related to radiation control.
- The CNSC's collaborative project on geological disposal has provided the CNSC with a beneficial scientific collaboration. The results of this collaboration are presented, shared and peer reviewed in an international consortium.

There is strong evidence from key informant interviews that knowledge gained through the Grants and Contributions is being shared internally within the CNSC among staff and managers and externally with stakeholders. Interviewees explained that, internally, information from Grants and Contributions was shared through a variety of mechanisms ranging from the more formal (e.g., trip reports, presentations to staff, and annual reports) to the informal (e.g., emails and one-on-one discussions among colleagues). Information shared externally includes publication of papers in peer-reviewed journals, presentations at conferences and meetings with stakeholders, and information posted on the CNSC website.

The following outcomes were partially achieved:

Outcome: Development of safety standards, requirements, guidance and tools

Outcome: Enhancements to regulatory framework documents

Although many, if not most, of the Grants and Contributions funded link to safety, none of the projects can be directly traced to specific safety standards, regulatory tools, regulatory requirements or guidance documents. The document review searched for projects linking to some of the priorities identified for specific years; however, none of the documents reviewed allowed for the linking of safety standards, regulatory tools, regulatory requirements, or guidance documents with specific Grants and Contributions projects or with Grants and Contributions projects in general. It is important to note that the CNSC uses many sources of information and data as inputs into its regulatory activities, which include the development of safety standards, regulatory tools, regulatory requirements, and guidance documents; it is thus difficult to link specific Grants and Contributions projects to specific regulatory activities of the CNSC. Additionally, it should be noted that these two outcomes are shared with the CSA contribution and the OECD/NEA contributions as well.

Although no direct link could be established in documentation, interview evidence suggested that these two outcomes would be impacted by the following Research Transfer Payments:

- CNSC radiation protection regulations – ICRP contribution, UNSCEAR contribution
- CNSC regulatory documents (specifically, REGDOC-2.5.2, REGDOC-2.3.2) – the VTT Technical Research Centre of Finland contribution, U.S. Nuclear Regulatory Commission contribution (CSARP)
- CNSC guidance (specifically, best practices related to dosimetry, ALARA, radiation dosage, shielding technology, incident reporting system, etc.) – ICRP grant, ICRU grant, Ottawa Hospital grant, Canadian Organization of Medical Physicists grant, Royal College of Physicians and Surgeons grant
- CSA standard (specifically, N288.6-12) – International Conference on Radioecology and Environmental Radioactivity grant
- CNSC technical criteria to assess a licensee submission – CANDU Owners Group contribution (PARTRIDGE), U.S. Nuclear Regulatory Commission contribution (CSARP), International Conference on Radioecology and Environmental Radioactivity grant

CSA

The following outcomes were achieved:

Outcome: Committee progress is monitored and stakeholders are kept informed of the status of projects

Overall, committee progress is monitored, and stakeholders are kept informed of the status of projects, through various documents produced by the CSA NSP.¹⁵ All of the documents produced by the NSP report directly on, or support the development of, standards. These various monitoring efforts serve to manage and oversee the program and are likely to have contributed to the success in producing timely standards. Based on the review of documentation, the NSP is generally on track to meet its standards development schedule.

Based on the feedback received in interviews, it was clear that the status reports are delivered to members of the NSSC. Additionally, it was noted that the CNSC representative on the NSSC hosts annual meetings with CNSC staff on technical committees/sub-committees, to share the overall status of the NSP and solicit feedback on current and future CNSC issue areas. A survey of CNSC staff members (who participate in technical committees/sub-committees) and CSA NSP members/stakeholders found that most CNSC staff members received status reports (64 percent).

Outcome: Accepted standards are used by the CNSC for the benefit of the regulatory framework and in licences

There is significant benefit to including CSA standards in the CNSC regulatory framework, as there is a clearly identified need for use of CSA standards among the CNSC staff involved in developing or implementing them. From March 31, 2006 to March 31, 2011 the CSA NSP published 29 standards and reaffirmed nine existing standards, for a total of 38 publicly available standards. The CNSC uses 82 percent of these CSA standards in its requirement (i.e., mandatory) and guidance (i.e., voluntary) documents.

Interviewees and survey respondents were asked if there is a need for both CSA standards and regulatory documents, with all interviewees and 89 percent of all survey respondents being in agreement. Furthermore, responses from interviews and survey respondents both indicate high levels of the use of CSA standards (on average, a CSA standard is accessed 13 times), and key benefits identified included:

- providing CNSC staff with the tools for day-do-day compliance verification
- providing licensees with technical requirements (guidance) for meeting regulatory requirements
- CSA standards represent the minimum requirements agreed to by industry, making enforcement easier
- enabling CNSC staff to participate alongside top talents in academia and industry to form safety requirements that are later referenced in regulation

The special reviews and task forces are intended to improve a specific issue area identified by the NSP membership; they are dissolved once that area has been

15. Various documents produced include the following: technical committee status reports, NSSC status reports, the program health reports (which provide an assessment of how standards development is performing against the 10-year technical committee plan), action item logs, the 10-year technical committee plans, and NSSC resource allocation tables (which establish planned in-kind contributions by each member per technical committee).

improved. There is evidence that these internal improvement practices have contributed to improved management of the CSA NSP.

From March 31, 2006 to March 31, 2011, three special reviews were conducted:

- Beyond Design Basis Accidents (which seeks to find a common understanding on how to write standards for "poorly defined events, criteria and scope")¹⁶
- Industry and Regulatory Compliance to CSA Process (which seeks to improve awareness of the CSA standards development process)
- Lean Thinking Initiative (which seeks to streamline the CSA standards development process to a six-month development cycle)

Additionally, over this same time period, 11 task forces were put into action – to improve the technical committee process, CSA/CNSC alignment, and the NSSC mandate, as well as a host of other subject areas. The special reviews and task forces all provide input into the development of Canadian nuclear standards, whether directly (through developing new standards, editions or amendments using technology-neutral concepts) or indirectly (through improving the work of technical committees by shortening the time it takes to develop standards products, and by decreasing the likelihood of negative ballots during the decision-making process). Each special review and task force is developed to target the specific area of concern and is dissolved once a report has been tabled at NSSC.

The following outcome was partially achieved:

Outcome: The CNSC is aligned with the federal Cabinet Directive on Streamlining Regulation

Almost all interviewees felt that by participating in the standards program, the CNSC is responsive to the Cabinet Directive on Streamlining Regulation. Those surveyed, however, were more likely to indicate that the NSP has only a limited impact on responding to the federal directive. It is difficult to determine the reason for this discrepancy in results between the survey and key informant interviews.

Those who provided a positive assessment of this relationship stated that:

- participating in the NSP assists the CNSC in developing standards that get incorporated into a license requirement, thereby avoiding new regulations
- the CSA is representative of the nuclear industry and is involved in developing the standards
- through the exercise of streamlining the CNSC regulatory framework, a number of older regulatory documents were amalgamated into new regulatory documents or CSA standards

Explanations provided by survey respondents who feel the CNSC is not responsive to the federal directive generally reflected a lack of understanding of the context of the federal directive.

16. Canadian Standards Association, Chairs Task Force Report, December 2007, slide 9.

Ultimately, the fact that some CNSC staff members do not fully understand the federal directive is indicative that the CNSC has not clearly articulated its rationale for contributing to – and participating in – the CSA NSP. The Government of Canada values the use of tools and approaches offered by the Standards Council of Canada, of which the CSA is a member. The use of agreed-upon best practices by industry stakeholders improves the acceptance of the requirement, reducing the need for multiple testing of that specific requirement and thus streamlining the regulatory approach.

The following outcome has not been achieved:

Outcome: Program has clear direction

Interview evidence found that CNSC staff members who have participated in CSA technical committees for successive years, as well as in the program's management committees, clearly understand the strategic and operational direction of the NSP and fundamentally understand the differing roles and responsibilities between the CNSC and the CSA. Survey findings, however, suggest that CNSC staff who are new to CSA technical committees are not provided with sufficiently clear strategic and operational direction (63 percent). Some respondents indicated that they received direction from their director, while others said they received no direction at all. Notably, two respondents further commented that a general lack of clarity exists with respect to the overall strategy or direction for the CNSC's involvement in the CSA program.

OECD/NEA

Outcome: Improved regulatory framework documents

There is evidence that most OECD/NEA Joint Research Projects enhance the CNSC's regulatory framework. Projects that have not enhanced the CNSC's regulatory framework are expected to do so in the near future.

The regulatory framework consists of requirements presented in regulations, licences, licence condition handbooks, regulatory documents, guidance documents, CNSC standards, policies, staff review procedures and other documents. The document review and interviews identified a series of regulatory framework documents that have been enhanced due to CNSC's participation in the OECD/NEA. Five out of seven Joint Research Projects¹⁷ have enhanced CNSC requirement and guidance documents; Fire Propagation in Elementary, Multi-Room Scenarios (PRISME/PRISME-2) and the Fire Incidents Records Exchange (FIRE) have not yet contributed, but are expected to do so in the near future. It should also be noted that data from the Information System on Occupational Exposure (ISOE) project was successfully leveraged by the CNSC during

17. (1) ISOE and (2) OPDE – RD-99.1, *Reporting Requirements for Operating Nuclear Power Plants* (draft); (3) CODAP; (4) SCAP and OPDE – RD-334, *Ageing Management for Nuclear Power Plants* (June 2011); (5) ICDE – S-294, *Probabilistic Safety Assessment for Nuclear Power Plants* (April 2005); (6) ISOE – Staff Review Procedure, *Application for Licence to Construct* (internal document, last revised October 2012); and (7) ISOE Staff Review Procedure, *CNSC Pre-Licensing Review of a Vendor Reactor Design* (internal document, last revised June 2012).

the recent drafting of *Proposals to Amend the Radiation Protection Regulations* in close cooperation with other OECD regulatory authorities and nuclear power utilities.¹⁸

Outcome: Enhanced regulatory oversight capabilities for licensing and compliance

Access to licensee data collected through the OECD/NEA Joint Research Projects has had some measurable impact on the CNSC's regulatory oversight capabilities for licensing and compliance. Interview responses on the extent to which regulatory oversight capabilities increased as a result of CNSC's participation in the OECD/NEA Joint Research Projects varied, depending on the nature of the project data submitted by licensees (voluntary or required) and the stage of the research. In the case of the International Common-Cause Data Exchange (ICDE) and the Stress Corrosion Cracking and Cable Ageing Project (SCAP), data submitted voluntarily by licensees to the CNSC is not reviewed to assess licensing or compliance. The Component Operational Experience, Degradation and Ageing Programme (CODAP), FIRE, ISOE, the OECD Piping Failure Data Exchange (OPDE), and PRISME/PRISME-2 are all projects where licensee data is reviewed; however, to date, only ISOE and OPDE have had an impact on regulatory oversight capabilities.

Access to Joint Research Project databases is intended to provide the CNSC with valuable benchmarks against which to assess the performance of Canadian licensees and therefore enhance regulatory oversight. ISOE information was used to improve radiation protection inspection reports and, therefore, radiation protection programs of licensees. The OPDE database provided highly accurate information on calandria tubes, which was used to update the regulatory requirements for nuclear power plant licensees on tube life management.

The MDEP, on the other hand, collects vendor data as part of the design review for new-build projects and thus has no immediate compliance impact. Access to information and data obtained through networking with other MDEP participants has contributed to improved information and oversight of the design review process. One interview respondent explained that the sharing of information with other regulators has enhanced the CNSC's awareness of potential challenges related to the design of the AP1000 technology and thus regulatory oversight of the design review.

Outcome: Ability to share technical knowledge with stakeholders

Almost all of the Joint Research Projects share data and/or information with licensees. The one exception is PRISME-2, an experiment-based project begun in 2011–12 and for which results are not yet available. For the majority of projects that do share information, the mechanism for sharing information varies depending on the nature of the project. For example, SCAP and ICDE request and receive data from licensees on a voluntary basis and licensees are then provided with password-protected access to information. Other modes of information sharing consist of teleconferences and presentations of data to

18. Canadian Nuclear Safety Commission, *Proposals to Amend the Radiation Protection Regulations*, discussion paper, September 2012.

licensees, sharing information through the CANDU Owners Group, and the NEA website.

For the MDEP, information sharing is common among the issue-specific working groups (vendor inspection cooperation, codes and standards, and digital instrumentation and controls). The sharing of information occurs through the solicitation of feedback on documents such as common position papers, teleconferences and consultations.

The following outcomes have not been achieved:

Outcome: Enhanced CNSC performance reports

The scientific and technical information gathered from participating in the OECD/NEA Joint Research Projects is intended to be used to enhance the CNSC's performance reports, in particular the *Integrated Safety Assessment of Nuclear Power Plants*. This is an annual report (published since 2006) that assesses how well plant operators are meeting regulatory requirements and program expectations in areas such as human performance, radiation and environmental protection, emergency management and fire protection.¹⁹ The document review found only one reference made to the OECD/NEA in the *Integrated Safety Assessment of Nuclear Power Plants* report. The 2010 report uses information extracted from the ISOE database to compare Canada's doses per reactor to international values under the Safety and Control Area "Radiation Protection".

Interviewees involved in OECD/NEA Joint Research Projects, along with the CNSC representative for the *Integrated Safety Assessment of Nuclear Power Plants* report, were asked to comment on the extent to which participation in these projects has enhanced the safety report. Slightly over half²⁰ of the interview respondents indicated there was no link as of yet. One interview respondent explained that no one should expect impacts at this early stage, because the reports provide information on compliance to current licensee requirements. Those who did state there was a link²¹ expressed it was, for the most part, indirect, although the data and information obtained through participating in the Joint Research Projects gave the CNSC a technical advantage in being better able to regulate nuclear power plants. In the case of the ISOE, regulations were enhanced, and this likely would have had an impact on licensee compliance and safety.

Outcome: Improved criteria for risk-informed and performance-based inspections

For the most part, improvements to indicators for inspections are associated with the Vendor Inspection Co-operation Working Group in the MDEP. Interview respondents who participate in the Vendor Inspection Co-operation Working Group explained that no revisions have been made to CNSC indicators for inspections to date. They noted, however, that information gathered from this working group will be used to develop a

19. To access the annual reports *CNSC Integrated Safety Assessment of Nuclear Power Plants*, see <http://www.nuclearsafety.gc.ca/eng/readingroom/reports/powerindustry/index.cfm>.

20. Five out of nine respondents indicated there is no link as of yet to the *Integrated Safety Assessment of Nuclear Power Plants*.

21. Four of nine respondents indicated there was an indirect link.

regulatory framework document to observe inspections or to conduct independent inspections. It was further stated that participation in this working group has allowed the CNSC to be better prepared for anticipated future inspections. The sharing of inspection data is seen as increasing the transparency of inspections and allowing for better identification of problems with design. The knowledge obtained in the ISOE, specifically on best occupation dose reduction techniques and best occupational exposure management at nuclear power plants, has been leveraged in preparation of a number of radiation inspection guides.

Outcome: Improved design review criteria and technical assessment criteria for new-build projects

With respect to design reviews, approximately two-thirds²² of the interview respondents participating in the MDEP were able to respond to this question. Some respondents expressed that no technical assessments have been done to date and that the design review for AP1000 is ongoing. Two interview respondents indicated that the design review of the AP1000 technology could have been accomplished without CNSC participation in the MDEP; however, it would have taken longer and would have been more expensive. The MDEP is viewed by interview respondents as a cost-effective and efficient mechanism through which to undertake design reviews, because it provides a forum for regulators to share their knowledge and experience. Additionally, the CNSC expects to experience a fuller impact to the improvement of its design review criteria through the adoption of the Code Comparison Report, which has recently been adopted by its Codes and Standards Working Group.²³

Two of the interview respondents participating in the MDEP indicated that generic, common positions reflect future requirements for new-build projects and that currently each participating country of the OECD/NEA has different criteria for classification; i.e., the same product has to meet different requirements in each country. The MDEP Digital Instrumentation and Controls Working Group is developing common criteria that the CNSC intends to incorporate into its technical assessments.

5.3 Efficiency and economy

This section addresses evaluation questions related to the efficiency and economy of the CNSC's Class Grants and Contributions Program. The section responds to the Treasury Board's core evaluation question related to demonstration of efficiency and economy. Overall conclusions for the CNSC's Class Grants and Contributions Program are presented first, followed by conclusions and a summary of findings for the three components included in this evaluation.

22. Five of eight respondents were able to answer the question, "How has MDEP enhanced the CNSC's design review and technical assessment of new licence applications?"

23. See <http://www.oecd-nea.org/mdep/working-groups/cswg.html> for further details. The report will be used within the CNSC regulatory context in order to assess new-build projects using pressurized water reactor (PWR) technologies, as it relates to compliance with pressure boundary expectations.

Under the Treasury Board Evaluation Policy (April 1, 2009), efficiency is defined as maximizing the outputs produced with a fixed level of inputs or minimizing the inputs used to produce a fixed level of outputs; economy is defined as "minimizing the use of resources...to achieve expected outcomes."²⁴ These elements of performance are demonstrated when:

- outputs are produced at minimum cost (efficiency)
- outcomes are produced at minimum cost (economy)

5.3.1 Overall conclusions – Efficiency and economy

Based on evaluation findings for each of the three component evaluations, it is not possible to provide a full quantitative assessment of the efficiency and economy of the CNSC's Class Grants and Contributions Program. This is a common issue for Grants and Contributions because of the challenges associated with performance measurement of Grants and Contributions, which is dependent on recipient organizations providing detailed reports that link to performance measures for the program.

Interviewees generally feel that the CNSC obtains good value for the funds spent on Grants and Contributions, with tangible benefits to the CNSC's capacities as a regulator. Grants and Contributions provide the CNSC with access to knowledge and information that would not otherwise be easily accessible or would be costly to generate internally within the CNSC.

The assessment of economy and efficiency found evidence of a need to better track CNSC staff time spent on Grants and Contributions related work, specifically for the CSA and the OECD/NEA. There is also a need to implement a performance measurement strategy that will facilitate the assessment of economy and efficiency; however, such a strategy must be cognizant of the fact that the CNSC's Grants and Contributions are relatively low risk (and generally low dollar value).

5.3.2 Supporting evidence – Efficiency and economy

This section presents the conclusions on the efficiency and economy of the CNSC's Class Grants and Contributions Program.

Issue #5: Demonstration of Efficiency and Economy – assessment of resource utilization in relation to the production of outputs and progress toward expected outcomes

To assess efficiency, planned versus actual financial dollars spent on each component of the CNSC's Class Grants and Contributions Program were reviewed. No discrepancies were found between planned and actual contribution/grant dollars spent. Spending for each evaluated component of the CNSC's Class Grants and Contributions Program is summarized in Table 11.

24. Treasury Board of Canada Secretariat, *Policy on Evaluation*, April 1, 2009, <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=15024§ion=text#cha4>.

Table 11: Actual and planned expenditures for the CNSC's Class Grants and Contributions Program, by financial year (\$)²⁵

Fiscal year	2008-09	2009-10	2010-11	2011-12	2012-13
Research Transfer Payments (excluding CSA and OECD/NEA)					
Planned expenditures (Grants and Contributions)	503,160	329,782	157,584	375,983	698,361
Actual expenditures (Grants and Contributions)	503,160	329,782	157,584	375,983	698,361
CNSC's contribution to the CSA					
Planned expenditures	400,000	418,300	448,075	506,971	422,750
Actual expenditures	400,000	418,300	448,075	506,971	422,750
CNSC's contribution to the OECD/NEA					
Planned expenditures	137,284	99,706	89,093	193,809	166,728
Actual expenditures	137,284	99,706	89,093	193,809	166,728
Total	1,040,444	847,788	694,752	1,076,763	1,287,839

Source: CNSC internal data, 2013.

In order to obtain a more holistic understanding of efficiency, further indicators were assessed for each component. In all cases, evidence addressing these additional indicators provided an incomplete picture of efficiency.

The CSA evaluation examined CNSC staff time apportioned to CSA activities. Planned staff time was generated from the CSA NSP, which develops annual estimates²⁶ of staff time for technical committees/sub-committees, distributing these to its members. The total planned time per year varies, reflecting the demand identified by each standard development schedule against the 10-year plan. The average amount of time that the CNSC spent participating in technical committees/sub-committees was 405.04 person days, with the maximum amount of 471 person days spent in 2009-10, and the minimum amount of 324.7 person days spent in 2006-07.²⁷ In other words, the average number of full-time equivalents (FTEs) is approximately 1.92 FTEs per year.²⁸ Actual time spent on CSA activities, however, could not be assessed. Interview evidence found that CNSC staff do use a task code in the Integrated Time Accounting System (ITAS) to

25. Financials do not include applicable HST/GST.

26. The planned estimates are based on the status of each standard development schedule and the necessary work identified by the technical committee to meet the timelines set out in the NSP 10-year plan.

27. Total planned person days spent in 2007-08 was 380.5, 463 in 2008-09, 386 in 2010-11 and 439.5 in 2011-12.

28. Number of FTE working days in the Canadian federal public service is 250 per year.

track time spent on activities related to the CSA NSP; yet, in the majority of cases,²⁹ this task code includes other activities associated with the regulatory framework (e.g., time spent in developing a regulatory document).

The OECD/NEA evaluation examined CNSC staff time apportioned to travel for participating in the contribution work. To fully assess resource utilization, an estimate of staff time was calculated using information associated with travel in Freebalance and CPMRS. Due to the variability of how information is gathered using the ITAS, a full account of CNSC staff time associated with OECD/NEA work could not be made. Information missing, for example, includes staff time allocated to sharing information internally and supervising staff participating in OECD/NEA Joint Research Projects, MDEP working groups and STCs.

Because the majority of CNSC staff time spent on OECD/NEA work is associated with travel, the estimated person days spent travelling is a reasonable account of time. Each time CNSC staff travelled in support of the OECD/NEA, three person days were accounted for; this includes time for travel, for the meeting/conference, and for preparation of the meeting/conference. Over the period 2007–08 to 2011–12, 441 person days, or 56 percent, was estimated as CNSC staff time spent on STCs, 225 person days, or 29 percent, was estimated as CNSC staff time spent on the MDEP, and 120 person days, or 15 percent, was estimated as CNSC staff time spent on Joint Research Projects.

The Research Transfer Payments evaluation examined project files for evidence of timelines and targets. All 49 project files were reviewed for evidence of timelines and targets. Of the files reviewed, eight included some indication of timelines and/or targets or deliverables. Two additional project files made reference to progress reports, but there was no evidence to indicate that reports were received by the CNSC. Examples of timelines include symposium dates and programs and dates for completion of specific activities. A few project files also included clearly articulated targets for testing or experiments.

To assess economy, all components relied heavily on interview and survey evidence as a proxy to understanding cost-effectiveness. In almost all cases, it was found the Grants and Contributions are achieved at the lowest possible cost. Under the Research Transfer Payments component, interviewees suggested that two grants were not set at the lowest possible cost: UNSCEAR and ICRU. Information obtained from these grants is available to the public on their websites. In the case of the CSA contribution component, there was some evidence (29 percent of survey respondents) that travel costs associated with participating in technical committees could be further reduced by the use of teleconferences/WebEx/videoconferences.

5.4 Design and delivery for continuous improvement

This section addresses evaluation questions related to the design and delivery of the three components of the CNSC's Class Grants and Contributions Program. The evaluation examined the extent to which actions arising from the 2008 evaluation

29. Notable exception includes a specific task code related to Certified Exposure Device Operators.

recommendations have been implemented. The 2008 evaluation resulted in the following recommendations and actions:

Recommendation #1: Further strengthen performance measurement and reporting.

Action: CNSC management directed staff to undertake a comprehensive and detailed review³⁰ of all research and support activities at the CNSC, including those managed under the RSP (including Grants and Contributions) and other Directorate-specific programs.

Recommendation #2: Further strengthen a common understanding of the grants and contributions.

Action: A briefing was provided to senior management on the overall RSP, including the Class Grants and Contributions, in January 2009.

Recommendation #3: Enhance the effective internal dissemination of project results and learnings.

Action: Enhancements were made to the program information provided on the CNSC's internal and external websites to improve awareness and better disseminate program project results.

This section also addresses unintended outcomes.

Overall conclusions for the Class Grants and Contributions Program are presented first, followed by a summary of supporting evidence.

5.4.1 Overall conclusions – Design and delivery

There is evidence that the CNSC's Class Grants and Contributions are being well managed with effective controls and attention to risk. There is also evidence from the document review that each project funded meets the needs of the CNSC.

Although the CNSC's Class Grants and Contributions Program is well managed, there has been only limited progress in responding to the recommendations from the previous (2008) evaluation.

Recommendation #1: Further strengthen performance measurement and reporting.

Although all three components have logic models and a Performance Management Strategy Template, which provides staff with guidance on performance measurement and was developed in 2013, no performance measurement data were available for the evaluations. Based on evaluation findings, this recommendation has not been fully

30. The exercise was aimed at enhancing program alignment to, and reporting against, the CNSC's strategic plans and priorities (and Performance Activity Architecture); improving the governance structure and processes for engagement of CNSC senior management in the strategic direction of the program; improving processes for, and follow-up on, the incorporation of program results and learnings in the CNSC's management system, regulatory framework and staff development programs; and ensuring adequate staffing and funding for the program administration.

responded to: there is a need for ongoing efforts to improve performance measurement and reporting for the Class Grants and Contributions Program.

Recommendation #2: Further strengthen a common understanding of the grants and contributions.

A briefing was provided to senior management on the overall Research and Support Program (RSP) in January 2009. Evidence exists, however, that further efforts are required, particularly with respect to the CSA contribution. There is evidence that CNSC staff who participate in CSA committees/sub-committees, as well as CNSC staff in general, lack an understanding of the linkages between the CSA's NSP and the federal *Cabinet Directive on Streamlining Regulation*.

Recommendation #3: Enhance the effective internal dissemination of project results and learnings.

The use of formal internal reporting mechanisms, particularly trip reports, has been beneficial for the sharing of G and C project results; however, evidence shows that more effort is required to ensure that knowledge is available and shared. CNSC staff continue to believe that knowledge from Grants and Contributions is not broadly shared within the organization.

5.4.2 Supporting evidence – Design and delivery

Overall performance measurement for the CNSC's Class Grants and Contributions Program is weak. Although all three components have an associated logic model, the evaluation only found evidence of a performance measurement strategy for the Research Transfer Payments Program³¹ – and this has not been fully operationalized. As a result, there were no performance measurement data available for any of the three components.

It should be noted that a new Performance Management Strategy Template has been developed in 2013 and provides guidance to CNSC staff on the requirements for performance measurement of Grants and Contributions. The document outlines how to develop a logic model for the project, identifying risks and identifying key performance measures. The document also clearly defines the accountabilities and reporting requirements. The template could be used to develop relevant and effective measures to be tracked and reported on an ongoing basis.

Overall, document review and interview evidence found that governance of ongoing Grants and Contributions is functioning well. The program was classified as low risk according to Treasury Board Secretariat (TBS) guidelines and a risk assessment undertaken in 2004. The risks are low due to the low materiality (i.e., dollar value) of the projects associated with the Grants and Contributions. Most projects reside with larger, international organizations, and the CNSC is only one of a number of contributors.

31. A logic model and corresponding performance measurement plan is detailed in the Accountability and Risk Framework.

The process for reviewing funding requests is consistent with the process used for other research support work and appears to be beyond what is required given the size of the program and risk level. A risk-based approach to considering funding is used, starting with a draft plan for each new fiscal year compiled by RRED staff and submitted for review and approval by the Research Support Committee, who assesses its merit and funding requirements. In its assessment, the Research Support Committee is guided by stated corporate policy and priorities and specific RSP objectives that are set each year. All Grants and Contributions initially approved by the Research Support Committee are then subject to additional review to ensure they are in compliance with the terms and conditions of existing CNSC TB authorities falling under the control of the RSP. The low volume of Grants and Contributions, their uniqueness, and the management and oversight provided by RRED and the Finance and Administration Directorate ensures effective project management and early detection of risks.

There is evidence from the document review that the program has good management processes in place to ensure each funded project meets the needs of the CNSC. The Technical Authority for each project is responsible for ensuring that the work progresses as described in the funding agreement, collecting ongoing data related to the effectiveness of the project, and producing a post-project evaluation that highlights how the results might be used by the CNSC. Clause 44 notes that 25 percent of the total approved contribution will be held back until the recipient has provided a final accounting of all eligible expenses. The Terms and Conditions for the RSP note that recipients are required to report on the use of funds and that funding recipients must report on the performance objectives and use of funds prior to any progress payments being released by the CNSC.

Interview evidence mirrors that which is found in the document review, for the most part: Grants and Contributions are managed well, with effective controls and attention to risk. A small minority of interviewees, however, noted some issues:

- Time taken to put the contribution agreement in place risked the CNSC not being able to participate.
- Performance measurement strategy for Grants and Contributions has been developed; however, the outcomes often cannot be measured at the level of each grant or contribution because the outcomes are not articulated.
- Some Grants and Contributions recipients do not provide the CNSC with sufficient documentation on how the funds are spent.
- There is sometimes a lack of communication between the Technical Authority responsible for the grant or contribution and RSP staff.

Interview evidence found that information is being communicated by CNSC participants of the OECD/NEA and CSA technical committees/sub-committees to their immediate supervisors, particularly through trip reports (for the OECD/NEA); this does not, however, percolate throughout the CNSC. To increase awareness and share information, various suggestions were offered by interview respondents, with most citing hosting annual workshops and presentations. These workshops and presentations could engage a variety of CNSC staff and management, across all business lines.

Additionally, interview evidence found there is a need for increased senior management support of CNSC staff on CSA technical committees/sub-committees, particularly with respect to providing guidance to those who are new to the technical committees/sub-committees. CNSC staff feel there is a need for improved communication with respect to the CNSC's involvement and role with the CSA.

Interviewees identified unexpected positive outcomes for the Research Transfer Payments and OECD/NEA components. Key among these is the establishment of international contacts/personal connections by CNSC staff, who are then able to call upon these personal connections to validate the CNSC's regulatory position. Interviewees also identified the following unexpected positive outcomes: gaining access to other organizations' research and regulatory models, gaining access to other organizations' decisions, leveraging external research, identification of gaps in safety monitoring, and differences in interpretation of codes and standards. Interviewees also reported that participation in the CNSC public hearing process has increased.

In terms of unexpected negative outcomes, interviewees identified two. The first one relates to the consensus-based decision making in an organization that makes it difficult for the CNSC to get the most out of the contribution provided. The second negative unintended outcome relates to the increased dependence of the Deep River Science Academy on CNSC funding – without CNSC funding, the Deep River Science Academy would likely cease to exist.

6 Summary and Recommendations

6.1 Relevance

Based on evidence from all three evaluations, the CNSC's Class Grants and Contributions Program is well aligned with federal government priorities related to the safety of the nuclear industry. A Government of Canada news release from February 2013, for example, states, "The health, safety and security of Canadians and environmental stewardship in all aspects of the nuclear industry remain a priority...". All three components of the CNSC's Class Grants and Contributions Program provide the CNSC with scientific and technical knowledge that allows the CNSC to more effectively regulate licensees and ensure the safety of the nuclear industry.

The role and responsibility of the CNSC in funding Grants and Contributions is supported by the *Nuclear Safety and Control Act* (NSCA) and, in the case of the CNSC's contribution to the CSA, the federal Cabinet Directive on Streamlining Regulation. The NSCA states that "The Commission may, in order to attain its objectives...establish and maintain programs to provide the Commission with scientific, technical and other advice and information...".³² The federal Cabinet Directive on Streamlining Regulation encourages the use of standardization tools and approaches offered by Canada's National Standards System (NSS), governed by the Standards Council of Canada

32. Government of Canada, *Nuclear Safety and Control Act*, S.C. 1997, c.9, s.21.

(SCC). The SCC accredits the CSA to develop national standards in many areas, including the nuclear sector.

The CNSC's Class Grants and Contributions Program reflects the objective of the Research and Support Program. The Grants and Contributions allow the CNSC to meet these objectives through the exchange of information, knowledge and best practices at the national and international levels.

6.2 Effectiveness

Based on evaluation findings for the three components included in the evaluation of the CNSC's Class Grants and Contributions Program, overall, the program is achieving its key objectives. Almost all objectives for the three component programs have been achieved in full or in part, with the exception of a few objectives for the OECD/NEA contribution. The nature of the projects funded under the OECD/NEA contribution are such that they have not yet had an impact; however, based on evaluation findings, it is reasonable to expect that these Grants and Contributions will contribute to the CNSC's achievement of its objectives for the contribution to the OECD/NEA.

6.3 Efficiency and economy

Based on evaluation findings for each of the three component evaluations, it is not possible to provide a quantitative assessment of the efficiency and economy of the CNSC's Class Grants and Contributions Program. This is a common issue for Grants and Contributions because of the challenges associated with performance measurement of Grants and Contributions, which is dependent on the funding organization (i.e., the CNSC) collecting detailed reports that link to performance measures for the program.

Interviewees generally feel that the CNSC obtains good value for the funds spent on Grants and Contributions, with tangible benefits to the CNSC's capacities as a regulator. Grants and Contributions provide the CNSC with access to knowledge and information that would not otherwise be easily accessible or would be costly to generate internally within the CNSC.

The assessment of economy and efficiency found evidence of a need to better track CNSC staff time spent on Grants and Contributions related work, specifically for the CSA and the OECD/NEA. There is also a need to implement a performance measurement strategy that will facilitate the assessment of economy and efficiency; however, such a strategy must be cognizant of the fact that the CNSC's Class Grants and Contributions Program is relatively low risk (and generally low dollar value).

6.4 Design and delivery

Overall performance measurement was found to be weak. Although all three components have an associated logic model, the evaluation only found evidence of a performance measurement strategy for the Research Transfer Payments Program – and this has not been fully operationalized. As a result, there were no performance measurement data available for any of the three evaluations. The lack of measurement

data meant that the assessment of efficiency and economy was limited for all three components.

The governance of ongoing Grants and Contributions is functioning well. Although the evaluations of the CSA and OECD/NEA contributions did not address the issue of governance, given that these components are also managed by the RSP, it is very likely that a similar governance approach is used for the CSA and OECD/NEA contributions. The CNSC's Class Grants and Contributions Program is relatively small in terms of value and thus overall risk level.

There is evidence of a need for increased senior management support of CNSC staff on CSA technical committees/sub-committees, particularly with respect to providing guidance to those who are new to the technical committees/sub-committees. CNSC staff feel there is a need for improved communication with respect to the CNSC's involvement and role with the CSA.

Evidence shows that information is being communicated by CNSC participants of the OECD/NEA and CSA technical committees/sub-committees to their immediate supervisors, particularly through trip reports (for the OECD/NEA); this does not, however, percolate throughout the CNSC. To increase awareness and share information, various suggestions were offered by interview respondents, with most citing hosting annual workshops and presentations. These workshops and presentations could engage a variety of CNSC staff and management, across all business lines.

6.5 Recommendations

The following recommendations flow from the evaluation of each of the three components of the CNSC's Class Grants and Contributions Program.

Research Transfer Payments

Recommendation #1: Construct clear and measurable performance objectives and activities:

- a. Require the Research and Support Program to systematically collect, analyze, utilize and report on performance of Research Transfer Payments on an ongoing basis.
- b. Require Technical Authorities to establish and monitor performance for each of their grants and/or contributions on an ongoing basis.

Recommendation #2: Improve Research and Support Program communications regarding Research Transfer Payments.

CSA

Recommendation #1: Construct a rationale that is clearly articulated to CNSC management and staff, to support the use and implementation of CSA Nuclear Standards into CNSC processes for licensing and compliance. The rationale should be consistent with the federal government directive to streamline regulation.

Recommendation #2: Redraft the current set of objectives defined in the contribution agreement between the CNSC and the CSA to be clear and measurable.

Recommendation #3: Develop and implement ongoing, systematic data collection to support CNSC objectives for contributing to – and participating in – the CSA Nuclear Standards Program.

Recommendation #4: Develop and disseminate information to CNSC staff involved in developing and/or implementing CSA Standards. Efforts to build awareness should specifically address the rationales, objectives, and supporting processes and procedures for use and implementation of CSA Nuclear Standards into licensing and compliance. This information should be developed with senior management support for CNSC staff on technical committees/sub-committees, as well as continuous efforts to monitor activities related to the CSA Nuclear Standards Program against CNSC's regulatory framework plan.

OECD/NEA

Recommendation #1: Construct clear and measurable performance objectives and activities:

- a. Require Technical Authorities to establish and monitor performance for each of their Joint Research Projects and the MDEP.
- b. Establish performance objectives for CNSC's participation in Standing Technical Committees and link performance to an OECD/NEA logic model.

Recommendation #2: Report to Management Committee, on an annual basis, the performance outcomes in support of the Joint Research Projects, the MDEP and Standing Technical Committees.

Recommendation #3: Improve the communication regarding results of the CNSC's contributions to and participation in the OECD/NEA with internal stakeholders.

List of Acronyms

1	CNSC	Canadian Nuclear Safety Commission
2	CODAP	Component Operational Experience, Degradation and Ageing Programme
3	CPMRS	CNSC Planning and Management Reporting System
4	CRPA	Canadian Radiation Protection Association
5	CSA	Canadian Standards Association
6	CSARP	Cooperative Severe Accident Research Program
7	EAC	Evaluation Advisory Committee
8	EWG	Evaluation Working Group
9	FIRE	Fire Incidents Records Exchange
10	FTE	full-time equivalent
11	GIF	Generation IV International Forum
12	GoC	Government of Canada
13	Grants and Contributions	grants and contributions
14	ICDE	International Common-Cause Data Exchange
15	ICRP	International Commission on Radiological Protection
16	ICRU	International Commission on Radiation Units and Measurements
17	ISG-TIP	International Steam Generator Tube Integrity Program
18	ISOE	Information System on Occupational Exposure
19	ITAS	Integrated Time Accounting System
20	MC	Management Committee
21	MDEP	Multinational Design Evaluation Programme
22	NEA	Nuclear Energy Agency
23	NSCA	Nuclear Safety and Control Act
24	NSP	Nuclear Standards Program
25	NSS	National Standards System (Canada)
26	NSSC	Nuclear Safety and Security Commission
27	OECD	Organisation of Economic Co-operation and Development
28	OECD/NEA	Organisation of Economic Co-operation and Development's Nuclear Energy Agency
29	OMC	Operations Management Committee
30	OPDE	OECD Piping Failure Data Exchange
31	PFP	Participant Funding Program
32	PRISME	Fire Propagation in Elementary, Multi-Room Scenarios
33	PWR	pressurized water reactor
34	R&D	Research and Development

35	RSC	Research Support Committee
36	RFSC	Regulatory Framework Steering Committee
37	RRED	Regulatory Research and Evaluation Division
38	RSP	Research and Support Program
39	SCAP	Stress Corrosion Cracking and Cable Ageing Project
40	SCC	Standards Council of Canada
41	STC	Standing Technical Committee
42	TBS	Treasury Board Secretariat
43	UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation

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Appendix A – Management Action Plans

CSA contribution

#	Recommendation	Type of recommendation	Response	Planned actions	Responsibility	Expected date of completion (M/Y)	Measures of achievement
1	Construct a rationale that is clearly articulated to CNSC management and staff, to support the use and implementation of CSA Nuclear Standards into CNSC processes for licensing and compliance. The rationale should be consistent with the federal government directive to streamline regulation.	Program Design	Accepted	1. Develop, as part of the initiative described under recommendation 4, clear objectives that outline the role and use of CSA Standards in the CNSC's regulatory framework 2. Publish objectives on the CNSC website, as part of the information relating to the regulatory framework and its components	RPD	1. Dec. 2012 2. Jan. 2013	Objectives developed, approved by Management Committee and published on the CNSC website
2	Redraft the current set of objectives defined in the contribution agreement between the CNSC and CSA, to be clear and measurable	Program Design	Accepted	1. Review contribution agreement objectives and adjust as necessary, in consultation with CSA, to ensure adequate capture of the objectives and deliverables developed in recommendations 1 and 3	RPD/SPD	1. Next renewal of agreement	Contribution agreement revised
3	Develop and implement ongoing, systematic data collection to support CNSC objectives for contributing to – and participating in – the CSA Nuclear Standards Program	Program Delivery	Accepted	1. Establish a dedicated cost code to capture all CNSC work related to developing CSA Standards, in order to provide a complete picture of the CNSC's in-kind contribution of time and travel costs, and assess the need for codes specific to the work of	RPD/FAD	1. Sept. 2012	Cost code established

				technical committees 2. Establish program monitoring metrics in consultation with CSA, including publications of new/revised Standards and the integration of CSA Standards into licensing and compliance activities	RPD	2. Sept. 2012	Metrics developed and reported upon annually to MC
4	Develop and disseminate information to CNSC staff involved in developing and/or implementing CSA Standards. Efforts to build awareness should specifically address the rationale, objectives, and supporting processes and procedures for use and implementation of CSA Nuclear Standards into licensing and compliance. This information should be developed with senior management support for CNSC staff on technical committees/sub-committees, as well as continuous efforts to monitor activities related to the CSA Nuclear Standards Program against CNSC's regulatory framework plan.	Program Delivery	Accepted	1. Formalize governance role of RFSC and MC in overseeing CNSC involvement in CSA activities taking into consideration CSA's mandate, policies and processes 2. Develop guidance for CNSC staff involved in developing CSA Standards, taking into consideration CSA's mandate, policies and processes 3. Formalize processes for collecting and providing CNSC comments on draft Standards and developing whole-of-CNSC positions for the final balloting of CSA Standards	RPD	1. Dec. 2012 2. Dec. 2012 3. Dec. 2012	Program governance approved by MC and guidance and processes are developed and available to CNSC staff

OECD/NEA contributions

#	Recommendation	Type of recommendation	Response	Planned actions	Responsibility	Expected date of completion (M/Y)	Measures of achievement
1	Construct clear and measurable performance objectives and activities: a. Require Technical Authorities to establish and monitor performance for each of their Joint Research Projects and MDEP	Program Design	Accepted	As lead, VP TSB will have relevant Technical Authorities implement performance measurement strategies for all Joint Research Projects and MDEP to support approval and/or renewal. VP RAB will provide evaluation of staff expertise and guidance to assist Technical Authorities with performance measurement strategy development.	VP TSB supported by VP RAB	December, 2016	Performance Measurement Strategies developed and sent to Regulatory Research: <ul style="list-style-type: none"> • FIRE – June, 2014 • ISOE – June, 2014 • MDEP – June, 2014 • CADAK – June, 2014 • CODAP – December, 2014 • ICDE – December, 2014 • PRISME – June, 2016
				The status of all ongoing research-related performance measurement strategies will be reported to MC as part of the Q4 Integrated Research Plan presentation.	VP RAB supported by VP TSB	Annually, starting June, 2014	Annual Q4 Integrated Research Plan

	b. Establish performance objectives for CNSC's participation in Standing Technical Committees and link performance to an OECD/NEA logic model			As lead, VP TSB, in consultation with VP ROB, will have relevant Technical Authorities implement performance objectives and align them to the OECD/NEA logic model. VP RAB will provide evaluation staff expertise and guidance to assist Technical Authorities in developing performance objectives.	VP TSB supported by VP RAB	March 31, 2014	Documented performance objectives that are aligned to the OECD/NEA logic model and cover all Standing Technical Committees where CNSC participates
				VP TSB to convene an annual meeting with Natural Resources Canada to coordinate joint participation in OECD/NEA committees. VP RAB will provide policy staff to facilitate.	VP TSB supported by VP RAB	Annually, starting September, 2014	Annual meeting minutes
2	Report to Management Committee, on an annual basis, the performance outcomes in support of the Joint Research Projects, MDEP and Standing Technical Committees	Program Delivery	Accepted	As lead, VP TSB will annually report on performance of Joint Research Projects, MDEP and Standing Technical Committees to Management Committee.	VP TSB	Annually, starting July, 2014	Annual presentation to Management Committee
3	Improve communication of results from CNSC contributions and participation in OECD/NEA with internal stakeholders	Program Delivery	Accepted	As lead, VP TSB, in consultation with VP ROB, will annually present results and performance of Joint Research Projects, MDEP and Standing Technical Committees at Operations Management Committee.	VP TSB supported by VP ROB	Annually, starting June, 2014	Annual report presented to Operations Management Committee
				As lead, VP TSB, with staff resources in SCD by VP RAB, will implement a communications strategy to improve knowledge sharing and results of Joint Research	VP TSB supported by VP RAB	March 31, 2014	Completed communication s strategy

				Projects, MDEP and Standing Technical Committees.			
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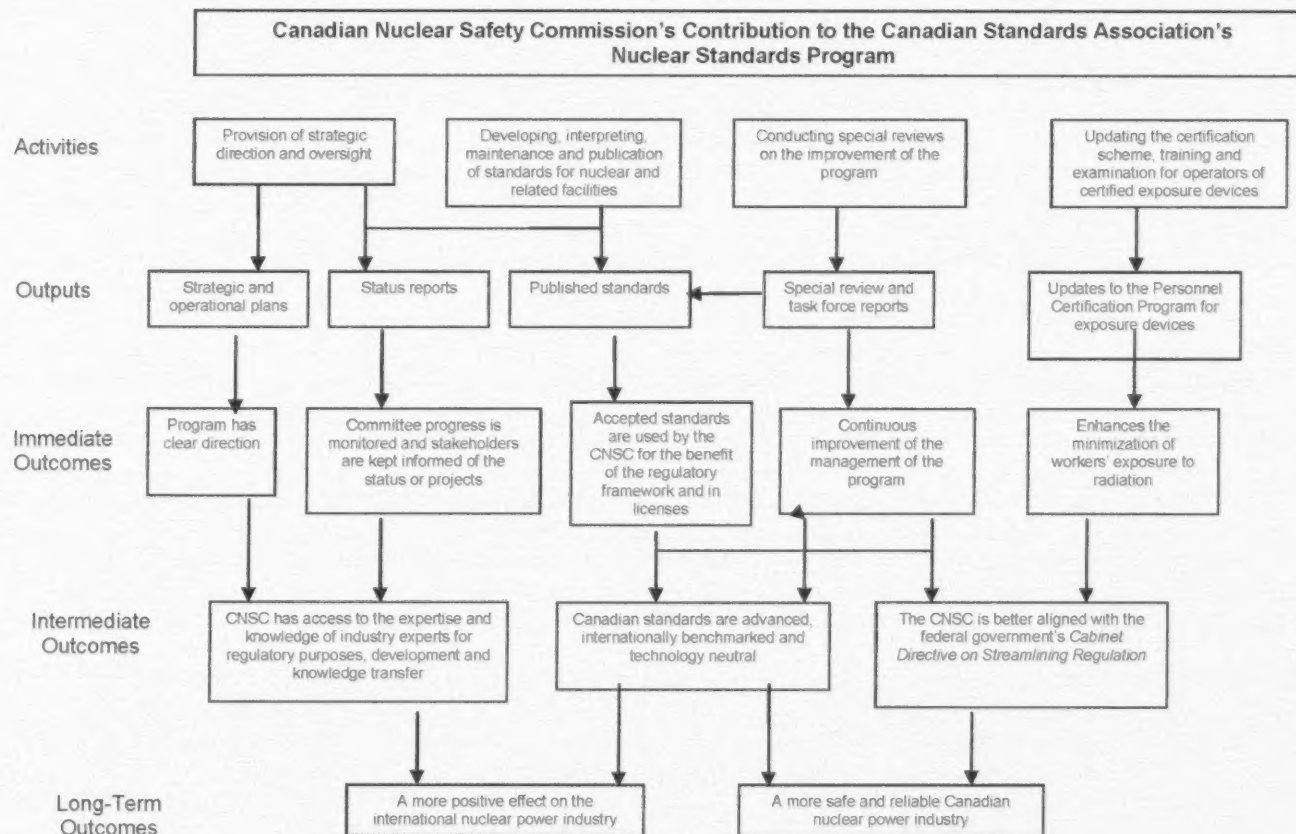
Research Transfer Payments

#	Recommendation	Type of recommendation	Response	Planned actions	Responsibility	Expected date of completion (M/Y)	Measures of achievement
1	Construct clear and measurable performance objectives and Activities: a) require Research and Support Program to systematically collect, analyze, utilize and report on performance of research transfer payments on an ongoing basis, and b) require Technical Authorities to establish and monitor performance for each of their Grants and/or Contributions on an ongoing basis.	Program Design and Delivery	Accepted	1.1 Review and implement overarching Research and Support Program performance measurement (PM) strategy 1.2 Complete PM strategies for existing contributions (ongoing) 1.3 Develop and implement a single grant PM strategy 1.4 Incorporate annual performance summary in annual MC update	Director, Regulatory Research and Evaluation Division	1.1 August 1, 2014 1.2 December 1, 2014 1.3 December 1, 2014 1.4 June 2, 2015	1.1 PM strategy approved by MC 1.2 100 percent of contributions have a PM strategy implemented 1.3 Generic grant PM Strategy available on Research and Support website and updated annually 1.4 MC approval of annual performance summary
2	Improve Research and Support Program communications regarding Research Transfer Payments.	Program Design	Accepted	2.1 Research and Support Program website updated with revised processes and information on Gs & Cs	Director, Regulatory Research and Evaluation	2.1 September 1, 2014	2.1 Information is available on BORIS website and client

					Division		feedback is obtained
				2.2 Complete research orientation sessions with client divisions		2.2 July 1, 2014	2.2 Sessions completed
				2.3 Review linkage of grants to outreach program		2.3 September 1, 2014	2.3 Outreach program lead has assessed need for grants and grants reflected in Research Annual Plan
				2.4 Conduct a client satisfaction survey to assess need for further changes in communications		2.4 December 1, 2014	2.4 Survey complete and action plan developed in response

Appendix B – Logic Models

Figure 1 CSA contribution



A logic model was developed by internal stakeholders to illustrate the key activities, outputs, and expected results of CNSC's participation in the Nuclear Standards Program. The purpose of the model is to present and identify the key outputs and results for monitoring and evaluation purposes. The Logic Model is presented in Appendix 1.

3.1 Activities and Outputs

As indicated in the logic model, CNSC's participation in the Nuclear Standards Program involves four main areas of activities. The first activity involves the provision of strategic direction and oversight by CNSC's involvement in the multi-stakeholder committees and associated sub-committees and working groups governing the Nuclear Standards Program. Through CNSC's involvement in these committees, standards for the nuclear industry are developed, interpreted, maintained and published. Additionally, from time to time, the NSSC carries out special reviews, such as the Lean Thinking Initiative, to improve the effectiveness and efficiency of the Nuclear Standards Program.

Strategic and operational plans are produced to clearly articulate the framework for effective decision making which creates an environment to publish standards and report on the status of the development, interpretation and maintenance of those standards. The conduct of special projects to improve the Nuclear Standards Program results in reports that may impact the development of standards.

3.2 Immediate Outcomes

The most immediate result of producing strategic and operational plans is that the Nuclear Standards Program has clear direction with respect to the development, review and amendment of standards, and a common understanding of opportunities for and challenges facing the program, including funding, and potential solutions for taking advantage of those opportunities or addressing those challenges, all in support of its objectives. Standards are developed by the various CSA Technical Committees and their associated sub-committees and working groups. Status reports from each Technical Committee are provided to the Nuclear Strategic Steering Committee semi-annually; in this way, committee progress is monitored and CSA members are kept informed of each project. The standards, once published, are then used by the CNSC in its regulatory activities (technical reviews when licensing, in licences, and in support of compliance activities) and by industry in support of licence applications and to demonstrate compliance with regulatory requirements. The special reviews and task force reports result in continuous improvement of the management of the Program itself.

3.3 Intermediate Outcomes

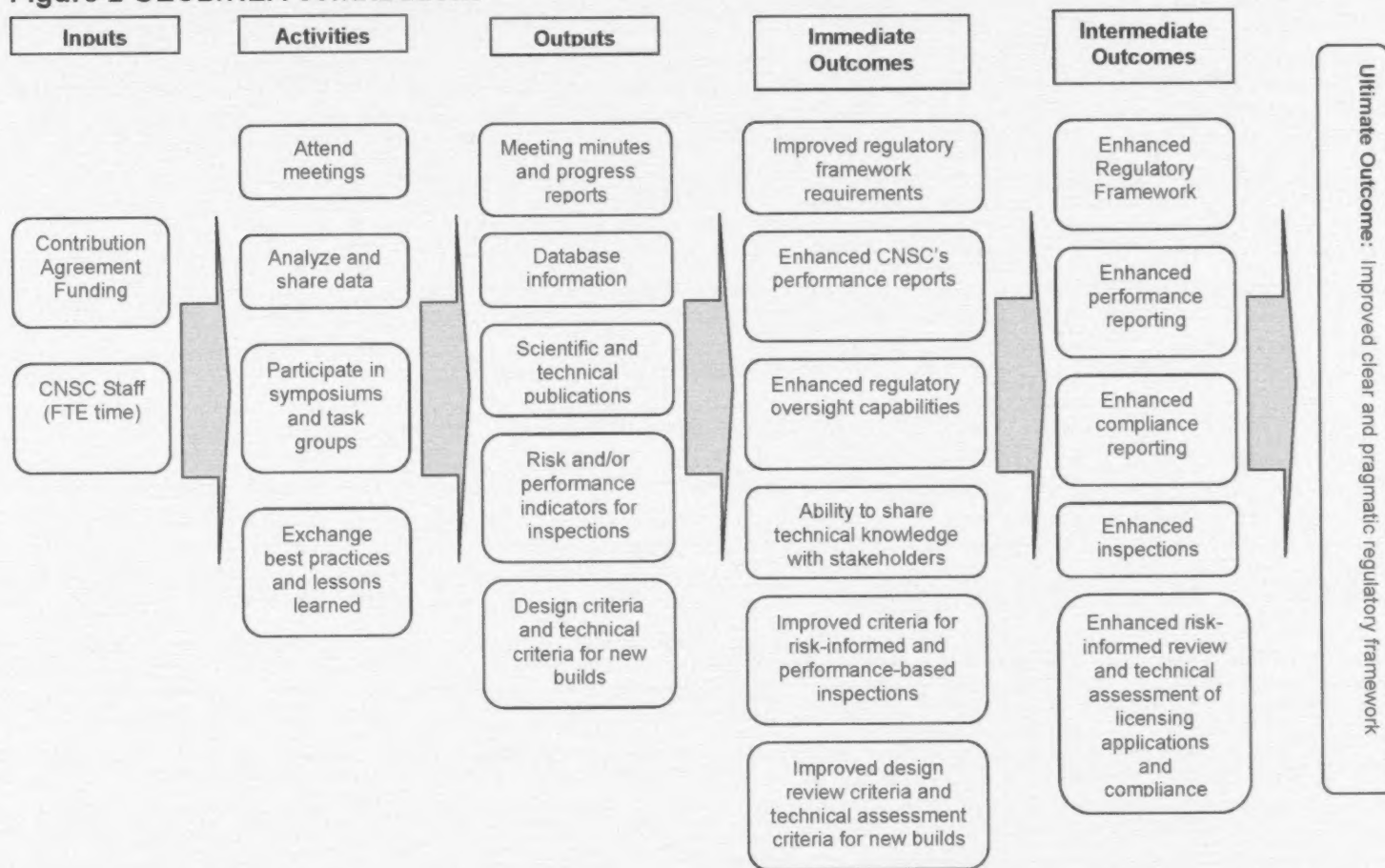
CNSC gains access to the expertise and knowledge of industry experts by its direct participation in the Nuclear Standards Program committees. The committees are structured in an organized format, benefitting by the clear direction established by strategic and operational planning and the monitoring of standards development projects, through status reports to the NSSC. The work of the Technical Committees is supported by the CSA's professional project managers. Access to industry experts, by way of CNSC's participation in committee work, enables CNSC to gain insight for further regulatory purposes, and supports professional development of CNSC staff and knowledge transfer. The standards and the process by which they are developed and interpreted via multi-stakeholder participation in Technical Committees, as well as the evidence drawn from special reviews and task force reports, creates an atmosphere that promotes the development of up-to-date, internationally benchmarked and technology neutral standards.

3.4 Long Term Outcomes

The ultimate results of CNSC's contribution to the Nuclear Standards Program are the objectives of the Program itself:

- A positive effect on the international nuclear power industry; and
- A safer and more reliable Canadian nuclear power industry.

Figure 2 OECD/NEA contributions



Activities and Outputs

As indicated in the logic model, CNSC's participation in the OECD/NEA involves four main areas of activities. The first activity involves select CNSC staff attending meetings regarding the administration of each project. Depending on the specific project, meetings are required of the Project Review Group, Steering Committee/Group, Management Board, Bureau, Policy Group or working groups (e.g., AP 1000, EPR, Digital I & C Standards, Codes & Standards, Vendor Inspection Co-operation working groups under MDEP or the Working Group on Data Analysis under ISOE). As a result of each meeting, minutes are developed summarizing actions and new direction. Additionally, progress reports are developed and disseminated to membership on a quarterly, semi-annual or annual basis depending on the project. In the case of MDEP, meetings of the various working groups are where opportunities for harmonization and convergence of safety licensing review practices and requirements are discussed and consistent design criteria for new builds are developed.

As in the case of FIRE, ICDE, ISOE, OPDE and PRISME, the second activity involves submitting, sharing and analyzing relevant Canadian licensee data. In the case of ISOE, the data is analyzed in the context of an expert working group on data analysis. Each project database provides trending data, which then analyzed informs root causes of specific event affecting the safety of nuclear power plants. The compilation of data, over time, for each project allows for subsequent analysis to be undertaken and, in the case of FIRE and ICDE, the development of indicators for risk-informed and performance-based inspections.

The third activity involves CNSC participating in various symposiums, expert working groups and task force groups where specific research areas of study are discussed and analyzed among project participants. As a result, scientific and technical reports are produced and publicized. Many of these reports are authored and co-authored by CNSC representatives participating in these projects.

Immediate Outcomes

The most immediate result of the production of analyses and conclusions compiled from each project's database and exhibited in scientific and technical reports as well as symposiums, expert working groups and task groups are improvements to CNSC's regulatory framework documents. The technical information derived from contributing to and participating in these projects is referenced in various regulatory framework documentation. Additionally, by having access to the various project databases, CNSC is in a better position to undertake its oversight role to ensure licensees are meeting regulatory requirements. In the case of ISOE, specifically, the information presented in the project databases informs CNSC of best occupational dose reduction techniques at Nuclear Power Plants.

The CNSC is also able to share the information generating from participating in the projects with licensees and the Canadian Standards Association. Information disseminated to licensees is expected to improve their safety of operations. Information disseminated to the Canadian Standards Association, on the other hand, is used to inform the technical content of their nuclear standards; another indirect method of improving safety from a regulatory perspective as most standards are directly referenced in CNSC's regulatory framework documentation. The indicators produced for risk-informed and performance-based inspections improve CNSC's criteria for conducting its own inspections (Type I and Type II). The design criteria produced as a result of MDEP consultations are then used internally at CNSC to enhance design review criteria and technical assessment criteria for new builds.

Intermediate Outcomes

The CNSC enhances its regulatory framework by improving the technical content within its regulatory guidance materials. By increasing knowledge of licensee best occupational dose reduction techniques the CNSC is able to improve its regulatory oversight capabilities.

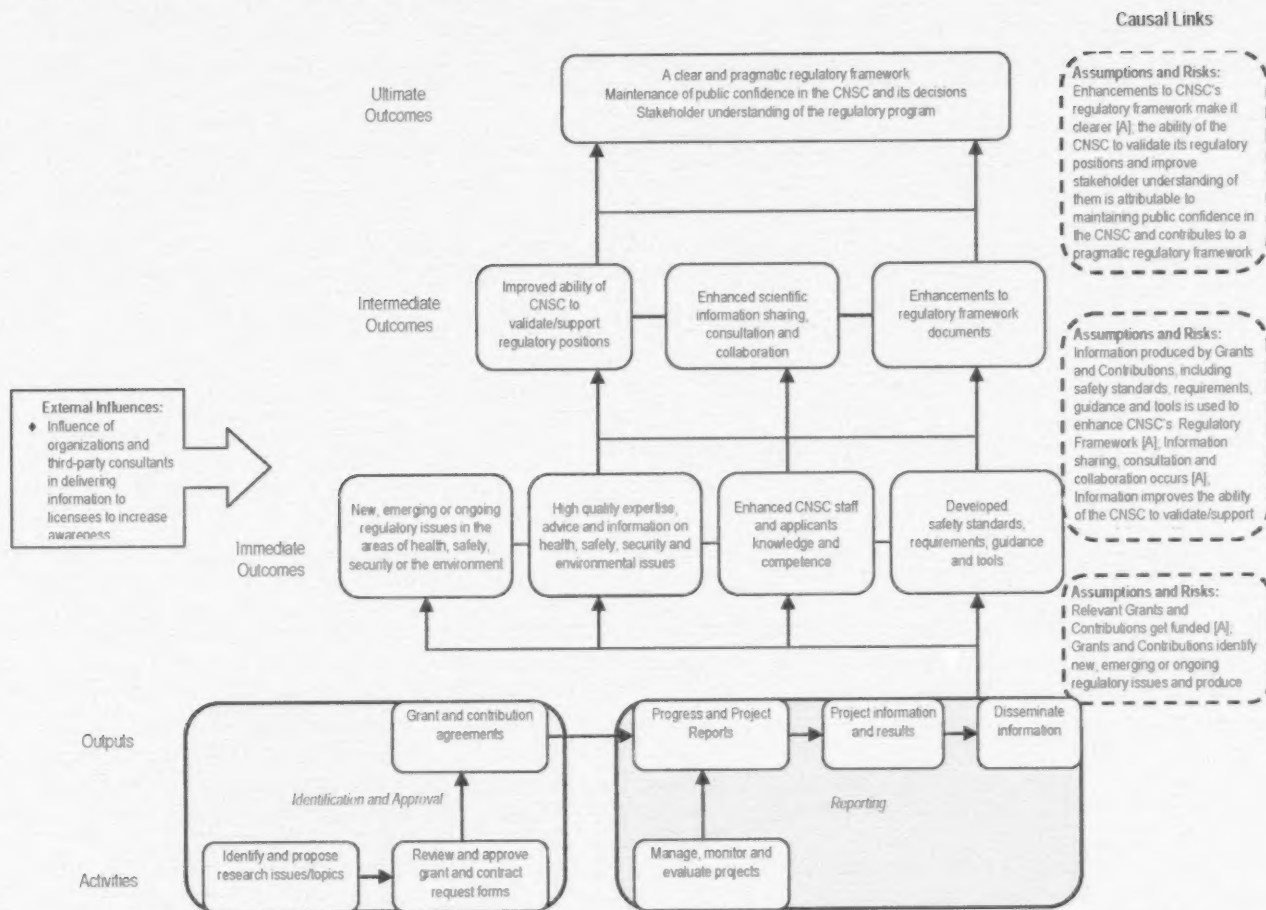
Additionally, by enhancing regulatory oversight capabilities, the CNSC gains additional information to enhance its compliance reporting exhibited in its annual integrated safety assessment report of Canadian Nuclear Power Plants. By improving risk-informed and performance-based criteria for inspections, the CNSC is able to enhance its inspectorate work overall.

Additionally, by making improvements to the CNSC design review criteria and technical assessment criteria for new builds, effectively the organization has enhanced its risk-informed review of licensing applications.

Long Term Outcomes

The ultimate result of CNSC's contribution to the OECD/NEA joint research projects and MDEP is an improved clear and pragmatic regulatory framework. This objective contributes to CNSC's strategic outcome: safe and secure nuclear installations and processes used solely for peaceful purposes and public confidence in the nuclear regulatory regime's effectiveness.

Figure 3 Research Transfer Payments



Activities and Outputs: Identification and Approval

A grant or contribution at the CNSC is initialized using the same process for all Research and Support Program projects. The Technical Authority identifies an area of interest that their Division would like to pursue and proposes this to the Research and Support Program for funding consideration. The Research and Support Program will make an initial assessment on the type of funding vehicle (research project, grant or contribution) that is most appropriate for each request.

Following, the Technical Authority will develop and submit a Grant Request Form (grant) or Contract Request Form (contribution) to capture the project details, including results expected to be achieved with a defined time period. In the case of a contribution, the Research and Support Program works with the Contract Administration Division to develop the agreement. Grants, on the other hand, are developed internally within RRED under the provisions of the Grants and Contributions Program Terms and Conditions. It should be noted that there are administrative correspondences between the recipient organization and the Research and Support Program, on behalf of the CNSC, during grant or contribution agreement finalization. These activities may have an impact on the timeliness of the grant or contribution process.

Activities and Outputs: Reporting

During each contribution agreement, progress reports are delivered to the Research and Support Program and the Technical Authority in order to measure progress towards expected results as well as to highlight any project-related issues affecting the quality and timeliness of the deliverables associated with the agreement. At the end of each contribution agreement, a project report is delivered to the Research and Support Program that summarizes the achievement of expected results. Depending on the grant, a summary of the achievement of expected results or outcome is provided to the Research and Support Program. The Research and Support Program uses the information contained in the project reports to inform future funding decisions where applicable. In addition, the Research and Support Program publishes the project report internally on BORIS for internal communication in the CNSC. The Technical Authority also disseminates the information gathered from the grant or contribution among their Division and Directorate level colleagues.

Immediate Outcomes

Information gathered from grants and contributions is utilized at the CNSC in multiple and complementary ways. All projects are intended to contribute to new, emerging or ongoing regulatory issues in the areas of health, safety, security or the environment. The information obtained is to be of high quality and used to enhance both CNSC staff and applicants knowledge and competence. Depending on specific grants and contributions, enhancing the knowledge and competence of high-school up to university professors (i.e., applicants) is expected. Specific to some contribution agreements, standards, requirements, guidance and tools are developed with participation with other national regulators and adopted for use at the CNSC.

Intermediate and Ultimate Outcomes

Achievement of the immediate outcomes is largely organized by enhancements to regulatory framework documents which largely impacts CNSC licensees. The information gained from grants and contributions is used to enhance information sharing, consultation and collaboration among a wide-range of CNSC stakeholders, including the public. Information is exhibited in regulatory framework documents which directly impacts the clarity and pragmatism of the regulatory framework. This information simultaneously assists the CNSC in its ability to validate its regulatory positions.

Ultimately, the CNSC's ongoing grants and contributions are intended to contribute to a clear and pragmatic regulatory framework. New information obtained from grants and contributions improves the clarity of the existing regulatory framework. The communication of this information to validate CNSC regulatory positions improves the pragmatism underlying the regulatory framework model. The scientific and internationally adopted evidence gathered by grants and contributions and used to validate the CNSC's regulatory positions attributes to the second and third ultimate outcomes of maintaining public confidence and stakeholder understanding of the CNSC regulatory program.

Appendix C – Evaluation Matrices

CSA contribution

Relevance: *Assessment of the role and responsibilities for the federal government in delivering the program; assessment of the linkages between program objectives and (i) federal government priorities and (ii) departmental strategic outcomes; assessment of the extent to which the program continues to address a demonstrable need and is responsive to the needs of Canadians*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
1. Is there a legitimate role for the CNSC's participation in the Nuclear Standards Program?	CNSC's participation in the Nuclear Standards Program is consistent with their role as a federal regulator.	1.1 Demonstrable support for CNSCs participation in the Nuclear Standards Program	Document review
2. Are the Nuclear Standards Program objectives aligned with CNSC's corporate priorities?	The objectives of the Nuclear Standards Program are aligned with CNSC's corporate priorities.	2.1 Extent to which the Nuclear Standards Program is aligned with CNSC's corporate priorities	Document review
3. Is there a continued need for the CNSC to participate in the Nuclear Standards Program?	There is a continued need demonstrated by CNSC staff.	3.1 Extent to which CNSC staff demonstrate a continued need in contributing to the Nuclear Standards Program	Survey
			Interviews

Performance – Effectiveness: *Assessment of progress toward expected outcomes with reference to performance targets and program reach, program design, including the linkage and contribution of outputs to outcomes*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
4. To what extent have strategic and operational plans provided clear direction to the Nuclear Standards Program?	Strategic and operational plans have provided clear direction to the committees in which the CNSC participates.	4.1 Evidence that strategic and operational plans have been implemented to guide committee work	Interviews
			Document review
		4.2 Extent to which staff agree/disagree that strategic and operation plans provide clear direction within committee work	Survey
5. To what extent is committee progress monitored and stakeholders are kept informed of the status of projects?	Status reports effectively capture committee progress on projects and keep stakeholders informed.	5.1 Number of status reports disseminated to stakeholders in a year	Document review
		5.2 Evidence that status reports provide stakeholders with relevant information to keep them informed	Interviews
			Survey
6. To what extent are the published Standards used by the CNSC for the benefit of the regulatory framework and in licenses?	Published Standards have been incorporated into the regulatory framework and in licenses.	6.1 Number of Standards that have been incorporated into the regulatory framework	Document review
		6.2 Number of Standards that have been incorporated into licenses	
		6.3 Number of Standards that have been incorporated into the Licensing Conditions Handbook	

7. To what extent have special reviews and task force reports led to the continuous improvement of the management of the Nuclear Standards Program?	Special reviews and task force reports have been used to inform the development of Canadian Nuclear Standards and have led to continuous improvement of the Nuclear Standards Program.	7.1 Number of special reviews and task force reports produced	Document review
		7.2 Number of special reviews and task force reports that have been used to inform the development of Canadian Nuclear Standards	
		7.3 Extent to which staff agree/disagree that the special reviews and task force reports lead to continuous improvement of Canadian Nuclear Standards	Interviews
			Survey
8. To what extent has the CNSC better aligned with the federal <i>Cabinet Directive on Streamlining Regulation</i> as a result of participating in the Nuclear Standards Program?	The CNSC's alignment with the federal <i>Cabinet Directive on Streamlining Regulation</i> has increased as a result of participating in the program.	8.1 Extent to which staff agree/disagree that CNSC is better aligned with the federal <i>Cabinet Directive on Streamlining Regulation</i> , as a result of participating in the Nuclear Standards Program	Survey

Performance – Efficiency and Economy: *Assessment of resource utilization in relation to the production of outputs and progress towards expected outcomes*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
9. Are there options for CNSC's participation in the Program that could reduce the cost of its contribution without adversely affecting the realization of results?	Opinions are gathered from staff on ways to reduce costs of its contribution to the Program without adversely affecting the realization of results.	9.1 Opinions on how CNSC's contribution to the Nuclear Standards Program could be reduced without adversely affecting the realization of results	Survey
			Interviews

10. Are there more cost-effective ways for the CNSC to participate in the Nuclear Standards Program Technical Committees?	Opinions are gathered from staff on ways to improve cost-effectiveness of participating in the Nuclear Standards Program Technical Committees.	10.1 Opinions on how the cost-effectiveness of participating in the Nuclear Standards Program Technical Committees could be improved	Survey
			Interviews
11. Are there more efficient or economical ways for the CNSC to develop nuclear standards or other nuclear regulatory documents?	Benchmarking exercise, comparing Canada to U.S., Great Britain and France, reveals alternative design/delivery (to increase cost effectiveness and efficiency) approaches, if any exist.	11.1 Comparison of Nuclear Standards Program to alternative design/delivery (to increase cost effectiveness and efficiency) approaches in other countries	Benchmarkers comparing Canada to the U.S., Great Britain and France
	Financial analysis, comparing cost of developing a regulatory document versus cost of developing a standard supports / does not support authenticity of developing standards via the CSA.	*11.2 Comparison of cost (\$ and FTE time allotment) in developing a regulatory document and developing a standard	Financial analysis comparing development of a regulatory document to development of a standard at CNSC
12. What, if any, unintended (positive or negative) outcomes have occurred as a result of CNSC's participation in the Nuclear Standards Program?	Unintended outcomes (positive or negative) are identified and when appropriate.	12.1 Presence/absence of unintended outcomes	Survey
			Interviews

OECD/NEA contributions

Relevance : *Assessment of the role and responsibilities for the federal government in delivering the program; assessment of the linkages between program objectives and (i) federal government priorities and (ii) departmental strategic outcomes; assessment of the extent to which the program continues to address a demonstrable need and is responsive to the needs of Canadians*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
1. Is there a legitimate role for the CNSC's participation in the OECD/NEA?	CNSC's participation in the Nuclear Standards Program is consistent with their role as a federal regulator.	1.1 Demonstrable support for CNSC's participation in the OECD/NEA as a federal priority	Document review
2. Are the contributions to OECD/NEA aligned with priorities of the federal government and departmental strategic priorities/outcomes?	The objectives of the OECD/NEA Joint Research Projects and MDEP are aligned with priorities of the federal government and CNSC strategic priorities/outcomes.	2.1 Extent to which the OECD/NEA Joint Research Projects and MDEP are aligned with CNSC's strategic priorities/outcomes	Document review
			Interviews
3. Is there a continued need for the CNSC to participate in the OECD/NEA?	Perspectives on stakeholder's needs and how these are being met/not met by design of contributions.	3.1 Stakeholder's perspectives on the usefulness/accessibility of the contributions to the OECD/NEA to meet actual needs	Interviews
4. Are CNSC objectives adequately addressed through its contribution and participation in OECD/NEA?	Evidence is available to assess whether CNSC objectives are addressed/not addressed through its contribution and participation in OECD/NEA.	4.1 Extent to which CNSC objectives are addressed through its contribution and participation in OECD/NEA	Interviews

Performance – Effectiveness: *Assessment of progress towards expected outcomes with reference to performance targets and program reach, program design, including the linkage and contribution of outputs to outcomes*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
5. To what extent has CNSC's participation in OECD/NEA Joint Research Projects enhanced CNSC's regulatory framework?	OECD/NEA Joint Research Projects have enhanced CNSC's regulatory documents in frequency and type.	5.1 # and type of regulatory framework documents that have been revised based on each OECD/NEA research project	Document review
			Interviews
6. To what extent has CNSC's participation in OECD/NEA Joint Research Projects enhanced CNSC's performance reports?	OECD/NEA Joint Research Projects have enhanced CNSC performance reports.	6.1 Demonstrable support that access to OECD/NEA data has enhanced CNSC's performance reports	Document review
			Interviews
7. To what extent has CNSC's participation in OECD/NEA enhanced regulatory oversight capabilities to review data submitted by licensees and vendors?	Access to licensee and vendor data as part of OECD/NEA has increased CNSC's regulatory oversight capabilities.	7.1 Demonstrable support that access to licensee and vendor data as part of OECD/NEA has increased regulatory oversight capabilities	Document review
			Interviews
8. To what extent has CNSC's participation in OECD/NEA increased the ability to share technical knowledge with stakeholders?	Technical knowledge from OECD/NEA have been shared with Canadian licensees and the CSA.	8.1 # of references to OECD/NEA within CSA standards	Document review
		8.2 Demonstrable support that technical knowledge from participating in OECD/NEA has been shared with licensees and the CSA	Interviews
9. To what extent has CNSC's participation in OECD/NEA	Criteria developed by OECD/NEA work has been incorporated into CNSC inspection	9.1 # of revisions to indicators for inspections, by type	Document review

improved criteria for inspections?	criteria.	9.2 Demonstrable support that criteria developed by OECD/NEA work has been incorporated into CNSC inspection criteria	Interviews
10. To what extent has CNSC's participation in MDEP enhanced CNSC's design reviews and technical assessments of new licence applications?	Design criteria developed in MDEP has been incorporated into CNSC design reviews and technical assessments have been revised.	10.1 # of revisions to design reviews based on MDEP design criteria information exchange	Document review
		10.2 Demonstrable support that CNSC has enhanced design reviews based on participation in MDEP	Interviews
		10.3 # of revisions to technical assessments based on information exchange	Document review
		10.4 Demonstrable support that CNSC has enhanced technical assessments based on participation in MDEP	Interviews

Performance – Efficiency and Economy: *Assessment of resource utilization in relation to the production of outputs and progress towards expected outcomes*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
11. Have resources (contribution dollars and travel (dollars and staff time)) been utilized to optimize outputs?	Resources are spent according to optimize outputs.	11.1 Resource utilization (contribution dollars and travel (dollars and staff time)) to produce outputs	Financial review
		11.2 Stakeholder opinions on satisfaction with efficiency (resources used and outputs produced)	Interviews
12. Are the administrative activities of the OECD/NEA	Stakeholder opinions are gathered on resource management for achievement of	12.1 Stakeholder opinions about resource management needed for	Interviews

contribution agreement well executed so as to maximize the benefits of the immediate outcomes?	immediate outcomes.	immediate outcome achievement	
13. Are there alternative methods which ensure the same achievement of immediate outcomes?	Stakeholder opinions are gathered on alternative methods, if any, to achieve immediate outcomes.	13.1 Stakeholder opinions about alternative methods to achieve immediate outcomes	Interviews

Design/Delivery: *Assessment of design/delivery for continuous improvement*

Evaluation question	Success factors (i.e., what should be observed)	Indicators	Collection methods
14. What have been some of the inhibitors/barriers and facilitators to success?	Barrier and facilitators to success have been identified.	14.1 Identified barriers and facilitators to success	Interviews
15. What have been some of the unintended/unplanned results of program implementation?	Unexpected/unplanned results (outputs or outcomes) have been identified.	15.1 # and type of unexpected/unplanned results (outputs or outcomes)	Interviews
16. How effective are the channels of communication for management of CNSC's participation in OECD/NEA?	Opinions of CNSC staff involved in participating in OECD/NEA are gathered on effectiveness of channels of communication.	16.1 Opinions of effectiveness of channels of communication	Interviews

Research Transfer Payments

Relevance : *Assessment of the role and responsibilities for the federal government in delivering the program; assessment of the linkages between program objectives and (i) federal government priorities and (ii) departmental strategic outcomes; assessment of the extent to which the program continues to address a demonstrable need and is responsive to the needs of Canadians*

Evaluation question	Demonstrated success	Indicators	Method
Evaluation Question #1: Do the CNSC ongoing Grants and Contributions address a demonstrable need ?	There are clear linkages between the objectives of the ongoing Grants and Contributions and the Research and Support Program.	Linkages between objectives of Grants and Contributions and the objective of the Research and Support Program	Document / file review
	Grants and Contributions meet needs of CNSC staff and management.	Perceptions of key informants that the Grants and Contributions meet the needs of CNSC staff and management	Interviews
Evaluation Question #2: Is there a demonstrable linkage between CNSC ongoing Grants and Contributions and federal government priorities? CNSC priorities?	There are clear linkages between funded Grants and Contributions and federal government priorities.	Linkage between CNSC Grants and Contributions and federal government priorities	Document / file review
	There are clear linkages between funded Grants and Contributions and CNSC.	Linkage between CNSC Grants and Contributions and CNSC priorities	Document / file review
Evaluation Question #3: Are CNSC ongoing Grants and Contributions aligned with CNSC roles and responsibilities?	Roles and responsibilities of the CNSC and funded Grants and Contributions recipients are clear and understood by both parties.	Roles and responsibilities of the CNSC and funded Grants and Contributions recipients	Document / file review

Performance – Effectiveness: Assessment of progress towards expected outcomes with reference to performance targets and program reach, program design, including the linkage and contribution of outputs to outcomes

Immediate outcomes			
Evaluation question	Demonstrated success	Indicators	Method
Evaluation Question #4a: To what extent have the CNSC Grants and Contributions contributed to new, emerging, or ongoing regulatory issues in the areas of health, safety, security or the environment?	Grants and Contributions have identified new or emerging regulatory issues for the CNSC.	Linkage between Grants and Contributions and contributions to new, emerging or ongoing regulatory issues	Document / file review
		Perceptions of key informants that Grants and Contributions have identified new, emerging or ongoing regulatory issues	Interviews
Evaluation Question #4b: To what extent have CNSC Grants and Contributions produced high quality expertise, advice and information on health, safety, security and environmental issues?	Grants and Contributions produce high quality expertise, advice and information.	Documented evidence of high quality of expertise, advice and information gained by Grants and Contributions and demonstrated in project reports	Document / file review
		Perceptions of key informants that Grants and Contributions have produced high quality expertise, advice and information internal and external to the CNSC	Interviews
Evaluation Question #5: To what extent have CNSC Grants and Contributions enhanced CNSC staff and applicants knowledge and competence?	CNSC participation in Grants and Contributions has produced information that has enhanced staff knowledge and competence in demonstrable ways.	Perception of key informants that CNSC Grants and Contributions has enhanced staff knowledge and competence	Interviews
		# of CNSC staff who have shared knowledge obtained from participating in Grants and Contributions to enhance regulatory framework documents	
		Documented evidence of enhanced CNSC staff and applicants knowledge	Document review

Evaluation Question #6: To what extent have safety standards, requirements, guidance and tools been adopted by the CNSC as a result of Grants and Contributions?	Safety standards have been adopted by the CNSC.	# of safety standards adopted by the CNSC using information produced from Grants and Contributions	Document / file review
		# of regulatory tools adopted by the CNSC using information produced from Grants and Contributions	
		# of requirements adopted by the CNSC using information produced from Grants and Contributions	
		# of guidance adopted by the CNSC using information produced from Grants and Contributions	
		Demonstrated evidence that safety standards, requirements, guidance and tools have been adopted by the CNSC as a result of Grants and Contributions	Interviews
Intermediate outcomes			
Evaluation Question #7: To what extent has information obtained from CNSC Grants and Contributions been utilized to improve CNSC's ability to validate regulatory positions?	CNSC presentations have incorporated information from Grants and Contributions.	# and type of CNSC presentations delivered to Grants and Contributions recipients	Document / file review
	Information obtained from ongoing Grants and Contributions has been used to validate/support CNSC regulatory positions.	Demonstrated evidence that information and knowledge obtained from participating in Grants and Contributions has improved CNSC's ability to validate/support regulatory positions	Document / file review
Interviews			
Evaluation Question #8: To what extent has information obtained from CNSC Grants and	Demonstrable enhancements have been made to regulatory framework documents utilizing information from Grants and	# of enhancements to regulatory framework documents based on information produced from Grants	Document / file review

Contributions been utilized to enhance regulatory framework documents?	Contributions.	and Contributions	
		Perceptions that information and knowledge obtained from participating in Grants and Contributions has enhanced the quality of regulatory framework documents	Interviews
Evaluation Question #9: To what extent has information obtained from CNSC Grants and Contributions been utilized to enhance information sharing, consultation and collaboration?	Demonstrable enhancements to information sharing, consultation and collaboration has occurred as a result of information obtained from Grants and Contributions.	Demonstrated evidence that information and knowledge obtained from participating in Grants and Contributions has enhanced information sharing, consultation and collaboration	Document / file review
			Interviews

Performance – Efficiency and Economy: Assessment of resource utilization in relation to the production of outputs and progress towards expected outcomes

Evaluation question	Demonstrated success	Indicators	Method
Evaluation Question #10: Were outputs achieved in a timely manner?	Information obtained from Grants and Contributions is achieved in the most timely manner.	Demonstrable evidence Grants and Contributions are managed with clearly defined timelines and implementation targets	Document / file review
		a. # of research issues/topics identified	Program data – Research and Support Program
		b. Total time to finalize grant agreement	
		c. Total time grant recipients received approved funding	
		d. Total time to produce outputs from grants	
		b. Total time to finalize contribution agreement	

		c. Total time to produce outputs from contributions	
		d. Total time contribution recipients received approved funding	
Evaluation Question #11: Were resources utilized in the most cost-effective manner ?	Grants and Contributions are managed and results are obtained in the most cost-effective manner.	Outputs were achieved within available resources	Financial review
		Key informant opinions regarding cost-effectiveness	Interviews
Evaluation Question #12: What alternatives exist or were explored to realize the outputs at a lower cost?	Alternative methods in search of lowering costs is explored to identify any efficiencies.	Key informant opinions regarding cost-effectiveness	Interviews

Design/Delivery: Assessment of design/delivery for continuous improvement

Evaluation question	Demonstrated success	Indicators	Method
Evaluation Question #13: Have there been any unintended (positive or negative) impacts as a result of the funded Grants and Contributions?	Unintended (positive or negative) impacts of the funded Grants and Contributions are identified.	Key informant opinions regarding unintended (positive or negative) impacts of the funded ongoing Grants and Contributions	Interviews
Evaluation Question #14: Is the governance of ongoing Grants and Contributions functioning well (decision making, control and risk management)?	There are decision making, control and risk management protocols in place to effectively govern ongoing Grants and Contributions.	Demonstrable evidence of existence and use of decision making, control and risk management protocols	Document / file review
			Interviews
Evaluation Question #15: Is there a clearly defined logic model and performance measurement strategy for Grants and Contributions?	Grants and Contributions are managed with the aid of a clearly defined logic model and performance measurement strategy.	Demonstrable evidence of a clearly defined Grants and Contributions logic model and performance measurement strategy	Document / file review
			Interviews

Appendix D – Document List, Interview Questions, and Survey Questions and Findings

CSA contribution

Document list

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Canadian Nuclear Safety Commission, *Licence Conditions Handbook, Pickering Nuclear Generating Station A*.

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Interview questions

1. How are you involved in the CSA Nuclear Standards Program?
2. How many years have you been participating in the CSA Nuclear Standards Program?
3. Do you feel it is important for the CNSC to continue participating in the CSA Nuclear Standards Program?
4. To the best of your knowledge, how much effort does your division spend on all activities related to CSA in a year?
5. What are the key benefits arising from CNSC participating in the CSA Nuclear Standards Program?
6. In your opinion, are there any changes required to CNSC's participation in the CSA Nuclear Standards Program?
7. Can you describe the decision making process that the CNSC uses to determine if it incorporates/does not incorporate a specific CSA standard into a regulatory document?
8. Can you describe the decision making process that the CNSC uses to determine if it incorporates/does not incorporate a specific CSA standard into licensing and compliance?
9. Do you feel that the CNSC is responsive to federal directives on streamlining regulations as a direct result of participating in the CSA Nuclear Standards Program?
10. How does your division monitor effort spent in activities related to the CSA Nuclear Standards Program?
11. In your opinion, are the respective roles and responsibilities of the CNSC and CSA clear?
12. In your opinion, is there a need for both CNSC regulatory documents and CSA standards?
13. How many times a month do you refer to or use the CSA Standards?
14. As a regulator, of what benefit are the CSA Standards to you?

15. In 2010–11, CNSC provided approximately \$450,000 in funding to CSA for the Nuclear Standards Program. Do you feel this is a good investment from the perspective of the CNSC?
16. To your knowledge, have there been any unintended negative outcomes as a direct result of CNSC's participation in the CSA Nuclear Standards Program?
17. To your knowledge, have there been any unintended positive outcomes as a direct result of CNSC's participation in the CSA Nuclear Standards Program?

Survey questions and findings

EQ 2: Alignment of CNSC Priorities with CSA Nuclear Standards Program

1. The objective of the CSA Nuclear Standards Program is "to help promote a safe and reliable nuclear power industry in Canada and have a positive influence on the international nuclear power industry."

How well do you feel this objective aligns with CNSC's four corporate priorities?³³

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	Total
Completely aligns	27%	14%	22%
Mostly aligns	27%	43%	33%
Somewhat aligns	45%	43%	44%
Does not align at all	0%	0%	0%
Don't know/No Answer	0%	0%	0%

EQ 3: Continued Need

2. How important do you feel it is for the CNSC to continue participating in the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Very important	82%	57%	76%	74%
Important	9%	14%	18%	14%
Somewhat important	9%	29%	6%	11%
Not at all important	0%	0%	0%	0%
Don't know/No Answer	0%	0%	0%	0%

3. What are the key benefits arising from CNSC participation in the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative (#)	CNSC Representative – Other CNSC Employee (#)	CSA Nuclear Standards Program Members/Stakeholders (#)	Total (#)

³³ Hyperlinks to the CNSC's four corporate priorities were provided to survey participants.

Understanding of perspectives between industry and CNSC/sharing of information	6	3	6	15
Obtaining industry buy-in into Standards which may feed into regulations	4	1	5	10
Communication of CNSC direction, concerns, and priorities to industry	4	2	3	9
Efficiency and effectiveness with respect to developing documents (regulations and Standards)	2		3	5
Obtaining technical input and advice from experts	2	1	1	4
Increased quality of Standards as a result of CNSC involvement in CSA		1	2	3
Helps identify where CSA Standards can be better used versus regulations (which save taxpayer money)			2	2
Increased credibility of Standards		1	1	2

4. In your opinion, are there any changes required to CNSC's participation in the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	45%	57%	24%	37%
No	27%	14%	71%	46%
Don't know/No Answer	27%	29%	6%	17%

5. In your opinion, are the respective roles and responsibilities of the CNSC and CSA clear?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	64%	57%	76%	69%
No	18%	29%	18%	20%
Don't know/No	18%	14%	6%	11%

Answer				
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EQ 4: Extent to Which Standards are Used by the CNSC

6. To what extent do strategic and operational plans provide you with clear direction for working in CSA technical committees and/or sub-committees?

	CNSC Representative – Technical Committee/Sub-Committee Representative
Very clear direction	0%
Mostly clear direction	27%
Somewhat clear direction	27%
Not at all clear direction	36%
Don't know/No response	9%

EQ 5: Extent to Which Progress is Monitored

7. Do you receive status reports?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	36%	71%	57%
No	64%	24%	39%
Don't know/No Answer	0%	6%	4%

8. Do you receive status reports in a timely manner so that you are able to effectively participate in the technical committees and/or sub-committees?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	100%	92%	94%
No	0%	8%	6%
Don't know/No Answer	0%	0%	0%

9. Could the status reports be improved in any way?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CSA Nuclear Standards Program Members/Stakeholders	Total

Yes	25%	36%	33%
No	50%	27%	33%
Don't know/No Answer	25%	36%	33%

EQ 6: Extent to Which Standards are Used by the CNSC

10. In your opinion, is there a need for both CNSC regulatory documents and CSA Standards?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	91%	100%	82%	89%
No	9%	0%	18%	11%
Don't know/No Answer	0%	0%	0%	0%

11. How often do you refer to or use the CSA Standards?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Average	17	8	13	13
Maximum	98	25	50	98
Minimum (excluding zero)	2	2	1	1

12. Overall, how useful do you find the CSA Standards in your work?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Extremely useful	27%	29%	71%	49%
Very useful	73%	43%	24%	43%
Somewhat useful	0%	29%	6%	9%
Not useful at all	0%	0%	0%	0%

EQ 7: Extent to Which Special Reviews and Task Force Reports Led to Improvement

13. To what extent do you feel these reports have contributed to improved management of the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CSA Nuclear Standards Program Members/Stakeholders	Total
Completely improved	0%	24%	14%
Mostly improved	27%	29%	29%
Somewhat improved	27%	18%	21%
Not at all improved	0%	0%	0%
Don't know/No Answer	45%	29%	36%

EQ 8: Alignment with Directive on Streamlining Regulation

14. To what extent do you feel that the CNSC is responsive to federal directives on streamlining regulations as a direct result of participating in the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	Total
Completely responsive	9%	14%	11%
Mostly responsive	18%	14%	17%
Somewhat responsive	9%	14%	11%
Not at all responsive	9%	29%	17%
Don't know/No Answer	55%	29%	44%

EQ 9: Reducing CNSC's Cost of Participating in the CSA Nuclear Standards Program

15. In 2010–11, the CNSC provided approximately \$450,000 in funding to the CSA for the Nuclear Standards Program. Do you feel this is a good investment from the perspective of the CNSC?

	CNSC Representative – Technical Committee/Sub-Committee Representative	Total
Yes	73%	73%
No	0%	0%
Don't know/No Answer	27%	27%

EQ 10: Improving Cost-Effectiveness

16. Are there more cost-effective ways through which the CNSC could participate in the technical committees?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	45%	18%	29%
No	18%	24%	21%
Don't know/No Answer	36%	59%	50%

EQ 11: Unintended Outcomes

17. To your knowledge, have there been any unintended positive outcomes as a direct result of CNSC's participation in the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	36%	0%	65%	43%
No	18%	14%	0%	9%
Don't know/No Answer	45%	86%	35%	49%

18. To your knowledge, have there been any unintended negative outcomes as a direct result of CNSC's participation in the CSA Nuclear Standards Program?

	CNSC Representative – Technical Committee/Sub-Committee Representative	CNSC Representative – Other CNSC Employee	CSA Nuclear Standards Program Members/Stakeholders	Total
Yes	27%	29%	18%	23%
No	18%	0%	47%	29%
Don't know/No Answer	55%	71%	35%	49%

OECD/NEA contributions

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Interview questions

1. To what extent does your PROJECT/MDEP reflect each of the following CNSC corporate priorities (Core +4Cs)?
2. What, if any, needs (from the perspective of the CNSC) are being met through the CNSC's participation in and funding of the PROJECT/MDEP/Standing Technical Committee Working Groups?
3. From your perspective is it worthwhile for CNSC to continue to participate in the PROJECT/MDEP/Standing Technical Committee Working Groups?
4. The Contribution Agreements that CNSC has with OECD/NEA are funded through the CNSC's Research and Support Program. The objective of this CNSC program is "to enable the CNSC to address the demand for clarity of regulatory requirements and institute changes to the regulatory framework in order to make it more strategic, risk informed and aligned with domestic and international benchmarks." How does CNSC's participation in and contribution to OECD/NEA contribute to address this objective?
5. To your knowledge to what extent has CNSC's participation in your PROJECT enhanced CNSC's regulatory framework? Are you able to provide some examples of how data or information generated through your PROJECT have been used to revise regulatory framework documents?
6. To what extent do you feel that CNSC's participation in the PROJECT/MDEP has enhanced CNSC's Staff Integrated Safety Assessment of Canadian Nuclear Power Plants (otherwise referred to as the Annual Nuclear Power Industry Safety Performance Reports)? Are you able to provide specific examples of how CNSC's participation in the PROJECT/MDEP has contributed to this report?
7. To what extent do you feel that access to licensee data as part the PROJECT/MDEP has increased the regulatory oversight capabilities of the CNSC? Are you able to provide specific examples of how access to licensee data has improved the oversight capabilities of the CNSC?
8. One of the objectives of the CNSC's participation in the PROJECT/MDEP is that the CNSC is able to share technical knowledge and data from the PROJECT/MDEP with licensees and the Canadian Standards Association (CSA). To your knowledge, is the technical knowledge and/or data from the PROJECT/MDEP being shared with licensees? To your knowledge, is

the technical knowledge and/or data from the PROJECT/MDEP being shared with the CSA?

9. To your knowledge, has indicator criteria developed in MDEP (i.e. Vendor Inspection Co-operation Working Group) been incorporated into CNSC inspection criteria? Are you able to provide examples of revisions to indicators for inspections implemented as a result of MDEP?
10. In your experience, to what extent has CNSC's participation in MDEP enhanced CNSC's design reviews and technical assessments of new licence applications?
11. As the key CNSC representative on the PROJECT/MDEP/Standing Technical Committee Working Group, approximately how many days per year, including travel do you spend on activities related to your PROJECT/MDEP/Standing Technical Committee Working Group?
12. In your opinion, to what extent have resources (staff time and funding) allocated to the PROJECT/MDEP/Standing Technical Committee Working Group by the CNSC been used efficiently?
13. Based on your experience with the PROJECT/MDEP contribution agreement, are there improvements needed to the administration of the contribution agreement on the part of the CNSC? Based on your experience with the PROJECT/MDEP contribution agreement, are there improvements needed to the administration of the contribution agreement on the part of the OECD/NEA?
14. Are there alternative methods through which the CNSC could achieve the same objectives as through its participation in the PROJECT/MDEP/Standing Technical Committee Working Group?
15. Based on your experience with the PROJECT/MDEP/Standing Technical Committee Working Group, what have been some of the factors that have facilitated the achievement of the expected objectives for your group's participation in the OECD/NEA?
16. Based on your experience with the PROJECT/MDEP/Standing Technical Committee Working Group, what have been some of the challenges to achieving the expected objectives for the your group's participation in the OECD/NEA?
17. To your knowledge, have there been any unexpected or unplanned results (either outputs or outcomes)? What have been the implications of these unexpected or unplanned results?

18. In your opinion, are the channels of communication between those who directly participate in the PROJECT/MDEP/Standing Technical Committee Working Group and CNSC management effective?

Research Transfer Payments

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documents and are not included in the above list. The files contain the contribution agreement, terms and conditions, internal briefing notes and correspondence routing slips that support approvals, selection of trip reports for CNSC staff participating in international meetings/conferences, and travel plan and actuals.

Interview questions

1. What need is met by the grant/contribution?
2. Are there alternatives that were explored or could have been explored to meet this need?
3. Has the information gained from the grant/contribution enhanced your knowledge?
4. Have you shared the knowledge gained from the grant/contribution with others at the CNSC? External to the CNSC?
5. How is the knowledge generated from grants/contributions communicated by the Research and Support Program to the CNSC? External to the CNSC?
6. Do you feel that the information gained from the grant/contribution addresses a new, emerging or ongoing regulatory issue?
7. How is the information gained from the grant/contribution used in the CNSC?
8. How is the information gained from the grant/contribution used to improve the CNSC's ability to validate or support its regulatory positions?
9. In your opinion, is the approval process for the grant/contribution timely and purposeful?
10. Do you feel that the Technical Authority/Research and Support Program/Management have managed the grant/contribution with effective controls and attention to risk?
11. Were the results of the grant/contribution achieved at the lowest possible cost?
12. What types of evidence have you gathered, if any, to monitor the progress of the grant/contribution?
13. To your knowledge, have there been any unintended (positive/negative) impacts as a result of the grant/contribution?